SIRIUS Motor Starters

6

Technical Information

can be found at
www.siemens.com/industrial-controls/support

under Product List:
- Technical specifications

under Entry List:
- Updates
- Download
- FAQ
- Manuals
- Characteristics
- Certificates

General data

Overview

3RA2 motor starters

The 3RA2 fuseless motor starters consist of the 3RV2 motor starter protector and the 3RT2 electromechanical contactor. The devices are electrically and mechanically connected using pre-assembled assembly kits (link modules, wiring kits and standard mounting rail or busbar adapters).

Around 500 preassembled 3RA2 combinations of these innovative 3RT2 controls and 3RV2 protection equipment can be ordered for direct-on-line and reversing starting of standard induction motors up to 32 A (approx. 20 HP/460 V).

In the 3RA2 motor starter, the 3RV2 motor starter protector is responsible for overload and short-circuit protection. Back-up protective devices, such as melting fuses or limiters, are superfluous here, as the motor starter protector is capable of withstanding short-circuits up to 65 kA at 480 V and 30 kA at 600 V. See the the actual SCCR ratings by device listed on the selection pages of this chapter.

The 3RT2 contactor is particularly suitable for extremely complex switching tasks requiring the greatest endurance.

The 3RA2 motor starters are available with setting ranges from 0.14 to 32 A in sizes S00 and S0:

Size	Width	Max. rated current $I_{n\ max}$	For induction motors up to
	mm	A	HP
S00	45	16	10
S0	45	32	20

The size of the 3RA2 motor starters is based on the size of the contactor:

Size of 3RA2	S00	S0
Size of 3RV2 motor starter protector	S00	S00[1], S0
Size of 3RT2 contactor	S00	S0

[1] The combination of an S00 motor starter protector with an S0 contactor is possible only for screw connection versions.

Operating conditions

3RA2 motor starters are climate-proof. They are intended for use in enclosed rooms in which no severe operating conditions (such as dust, caustic vapors, hazardous gases) prevail. Suitable covers must be provided for installation in dusty and damp locations.

Tripping times

All 3RA2 motor starters described here are designed for normal starting, in other words for overload tripping times of less than 10 s (CLASS 10). At rated-load operating temperature the tripping times are shorter, depending on the particular equipment and the setting range. The exact values can be derived from the tripping characteristics of the motor starter protectors.

Connection methods

For all 3RA2 starters up to 32 A, spring-type connection is available as well as screw connection. To connect two devices with spring-type connection there are plug-in connection modules for sizes S00 and S0 which enable very quick mounting of the starters and a vibration-resistant assembly.

To connect a motor starter protector with screw connection to a contactor with spring-type connection there are special hybrid connection modules for S00 and S0.

Screw terminals

Spring-type terminals

These terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

While starters can be assembled with either spring-type or screw connection, the pre-assembled versions offered in this chapter are with screw terminals only. For spring-type versions, simply order the components listed on the spring-type terminal pages and assemble these starters quickly and efficiently without the use of any tools.

3RA2 complete units

The 3RA2 fuseless motor starters can be ordered as preassembled complete units for direct-on-line starting (3RA21) or for reversing duty (3RA22) with screw connection.

Control supply voltages of AC 50/60 Hz 110/120 V and 24 V DC are available to choose from.

A distinction is also drawn between whether the starter is mounted on a 35 mm standard mounting rail, on a flat surface using screws, or on a 60 mm busbar system.

Accessories

As the 3RA2 fuseless motor starters are constructed from 3RV2 motor starter protectors and 3RT2 contactors, the same accessories - such as auxiliary switches, undervoltage releases or door-coupling rotary operating mechanisms - can be used for the 3RA2 fuseless motor starters as for these motor starter protectors and contactors.

In particular, certain accessories have been optimized for the fuseless motor starters. They include the top-connected, transverse auxiliary switch on the motor starter protector, which is available with 1 CO contact or 1 NO contact + 1 NC contact. Special auxiliary switch blocks that can be snapped on from below are available for the contactor. These two accessories enable the fuseless motor starters to be wired simply without having to route cables through the device.

Incoming energy supply

On the whole four different infeed possibilities are available (see "3RV29 Infeed System for Motor Starters" on page 6/31).

Customer assembly of fuseless motor starters

While the preassembled 3RA2 can be ordered up to 32 A, combinations in customer assembly without link modules are also possible up to 40 A (approx. 25 HP/460 V).

Thanks to the SIRIUS modular system, the standard devices can be optimally combined in terms of both technical specifications and dimensions.

The fuseless motor starters can also be assembled easily by the customer. It is simply necessary to assemble the standard 3RV2 motor starter protector, the 3RT2 contactor and the appropriate assembly kit.

For single devices and assembly kits see "Selection and ordering data" for 3RA21 direct-on-line starters and 3RA22 reversing starters.

For assembly kits for direct-on-line starting or reversing duty for mounting on standard mounting rails or busbars see "Selection and ordering data" for "Accessories".

For reversing starters size S0 it is imperative to use a standard mounting rail adapter in order to ensure the necessary mechanical strength. A standard mounting rail adapter is not necessary if a busbar adapter is used.

The 3RA1 fuseless motor starters can be used for the fuseless motor starters between 32 A and 100 A.

The SENTRON 3VL circuit breakers and the SIRIUS 3RT contactors are available for rated currents >100 A.

Special equipment for customer assembly can be ordered if other rated control supply voltages are required. Assembly kits can be used to facilitate assembly.

Customers can also assemble tested combinations of motor starter protectors with solid-state controls (soft starters, solid-state contactors) and motor starters with additional monitoring and control devices (3RR monitoring relays, SIMOCODE 3UF).

For the electrical and mechanical connection of protection equipment and controls there are preassambled assembly kits (link modules, wiring kits and standard mounting rail or busbar adapters).

The following types of configuration are possible:

- Direct-on-line/reversing starting (see preassembled 3RA2 combinations)
- Wye-delta starting (only customer assembly with link module)
- Solid-state/soft starting (only customer assembly with link module)

General data

Communications integration using IO-Link

Motor starters can also be assembled with IO-Link for connection to the higher-level control system. For each starter this requires a communication-capable contactor onto which a 3RA27 11 function module is plugged (various versions for direct-on-line, reversing and wye-delta starts). The design of the SIRIUS motor starters permits a group of up to 4 SIRIUS controls to be conveniently connected through a standardized IO-Link to a control system, reducing wiring time considerably compared to the conventional parallel wiring method. The electrical connection is made using only a single cable with three conductors.

The function modules perform not only the communication (contactor operation and feedback, ready signal) but also the electrical interlocking (for reversing and wye-delta starters) and the timing relay function (wye-delta reversing time).

Communication information and control supply voltages are passed on through ribbon cables so that the complete control current wiring on the starter is no longer needed.

The monitoring and maintenance of a plant is made considerably easier by transmitting diverse diagnostics data from the function modules (e. g. missing main and auxiliary voltage, local disconnection…) through IO-Link to the higher-level control system. Also, starters equipped for IO-Link can be conveniently controlled from the control cabinet door using the optional operator panel.

More information:

- For IO-Link see Chapter 2 "Industrial Communication"
- For 3RA27 function modules see Chapter 3 "Controls – Contactors and Contactor Assemblies" --> "Function Modules".

Communications integration through AS-Interface

Connection of the motor starters to the higher-level control system is possible not only through IO-Link but also through AS-Interface. The AS-Interface connection is recommended wherever motor starters are used in distributed applications. This solution also requires a communication-capable contactor and a corresponding 3RA27 12 function module (various versions for direct-on-line, reversing and wye-delta starts). The devices are implemented in A/B technology, making it easy to connect up to 62 starters to an AS-i master (regardless of whether they are direct-on-line, reversing or wye-delta starters).

This results in a significant reduction of wiring compared to the conventional parallel wiring method. The electrical connection is made using standard cables.

The function modules perform not only the communication (contactor operation and feedback, ready signal) but also the electrical interlocking (for reversing and wye-delta starters) and the timing relay function (wye-delta reversing time).

Communication information and control supply voltages are passed on through ribbon cables so that the complete control current wiring on the starter is no longer needed.

More information:

- For AS-Interface see Chapter 2 "Industrial Communication"
- For 3RA27 function modules see Chapter 3 "Controls – Contactors and Contactor Assemblies" --> "Function Modules".

Contactors with communication interface

For assembling motor starters with communications integration (AS-i/IO-Link) you need contactors with a communications interface. **These contactors are not included as standard in the preassembled 3RA2 motor starters**. A motor starter with communications interface must be assembled by the customer from individual devices.

Complete integration in the automation landscape

As the result of the communication connection through IO-Link or AS-i, the SIRIUS motor starters are fully integrated in the automation landscape and can draw on all the advantages of TIA (e. g. integration in the TIA Maintenance Station).

Mounting

3RA2 fuseless motor starters are available:

- For mounting onto standard mounting rails TH 35 according to EN 60715 (depth 15 mm)
- For mounting onto busbar adapters (busbar center-to-center clearance 60 mm, bar thickness 5 to 10 mm)

The fuseless motor starters are also suitable for screw fixing using two 3RV29 28-0B push-in lugs.

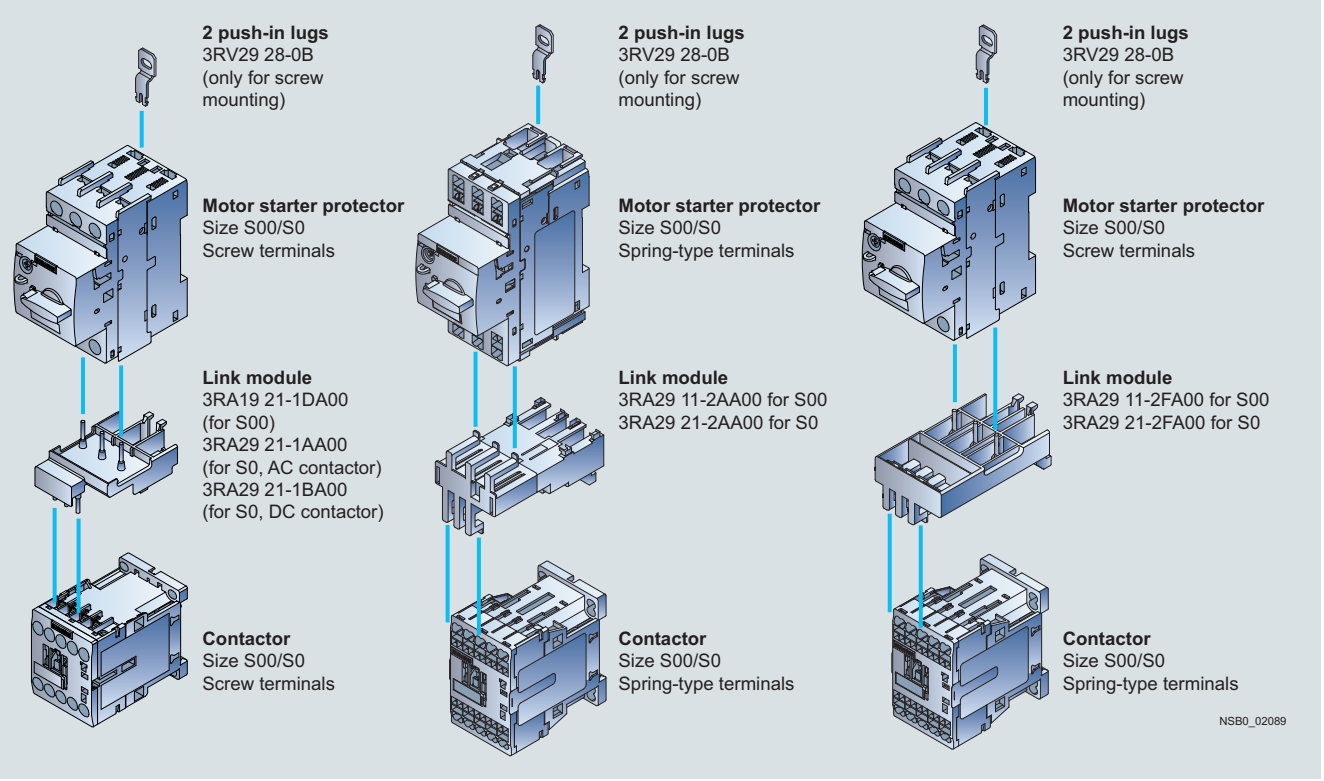
The 3RA2 fuseless motor starters can also be configured with the 3RV29 infeed system (see Chapter 5 "Protection Equipment" --> "SIRIUS 3RV2 Motor Starter Protectors up to 40 A"

Benefits

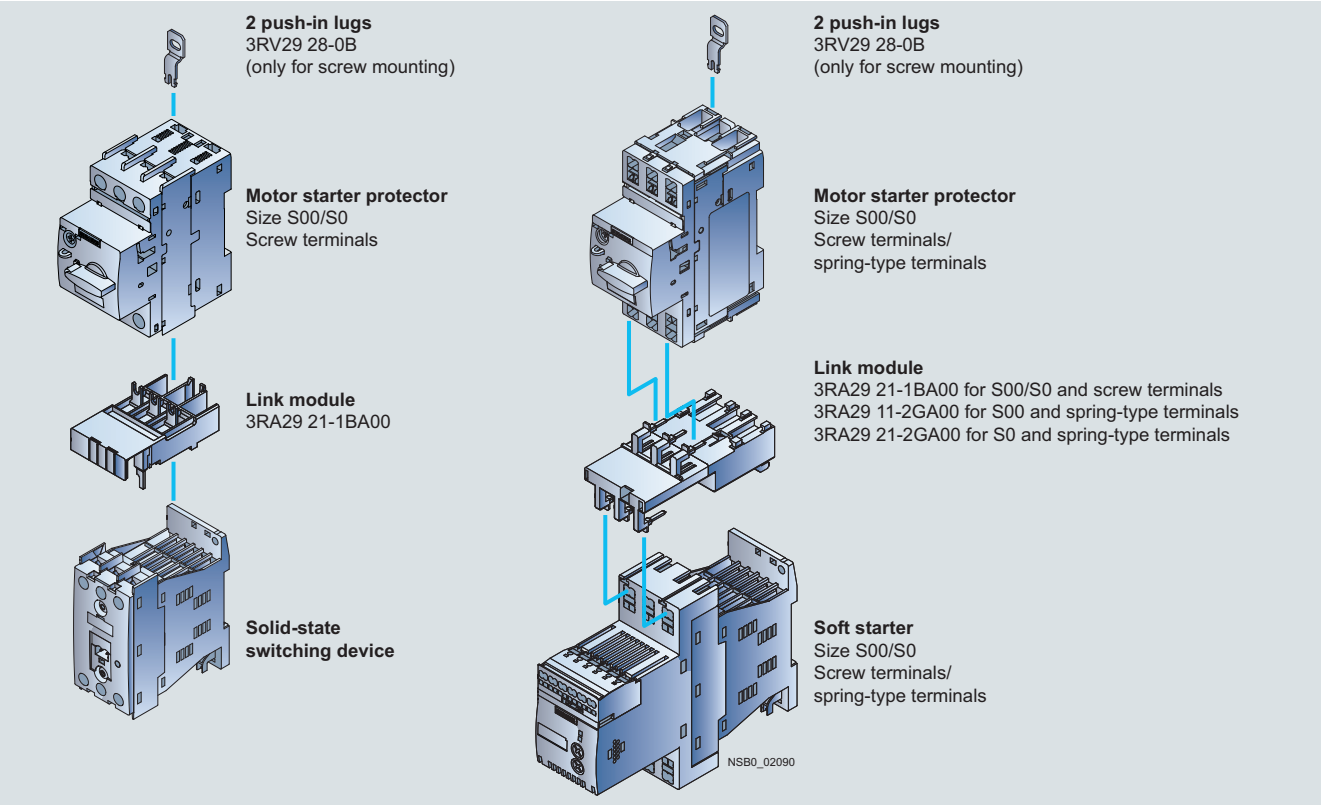
The 3RA2 fuseless motor starters offer a number of advantages:

- Minimum planning and assembly work and far less wiring with the preassembled complete units (only one order number 3RA2)
- Plug-in connectors from the motor starter protector to all types of SIRIUS controls, for quicker and error-free assembly of starters with screw and spring-type connection
- High planning reliability through consistent combination tests for fuseless (400 V according to IEC) and fused configuration (400 V, 500 V and 690 V according to IEC)
- Comprehensive approvals for use world-wide (please ask for details of availability)
- Uniform accessories for the two sizes S00 and S0
- Spring-type connection possible throughout: Enhanced operational reliability (vibration-resistant wiring) and less wiring work thanks to plug-in connections
- Power loss 5 to 10 % smaller than for legacy 3RA1 devices, hence lower power consumption
- Connection of starters to the control system through standardized system connection (IO-Link and AS-i), for fast integration in TIA and less wiring work. Requires communication contactor versions which are not offered in pre-assembled 3RA2 starters.

Direct-on-line starting • For standard rail mounting or screw fixing • Sizes S00 and S0



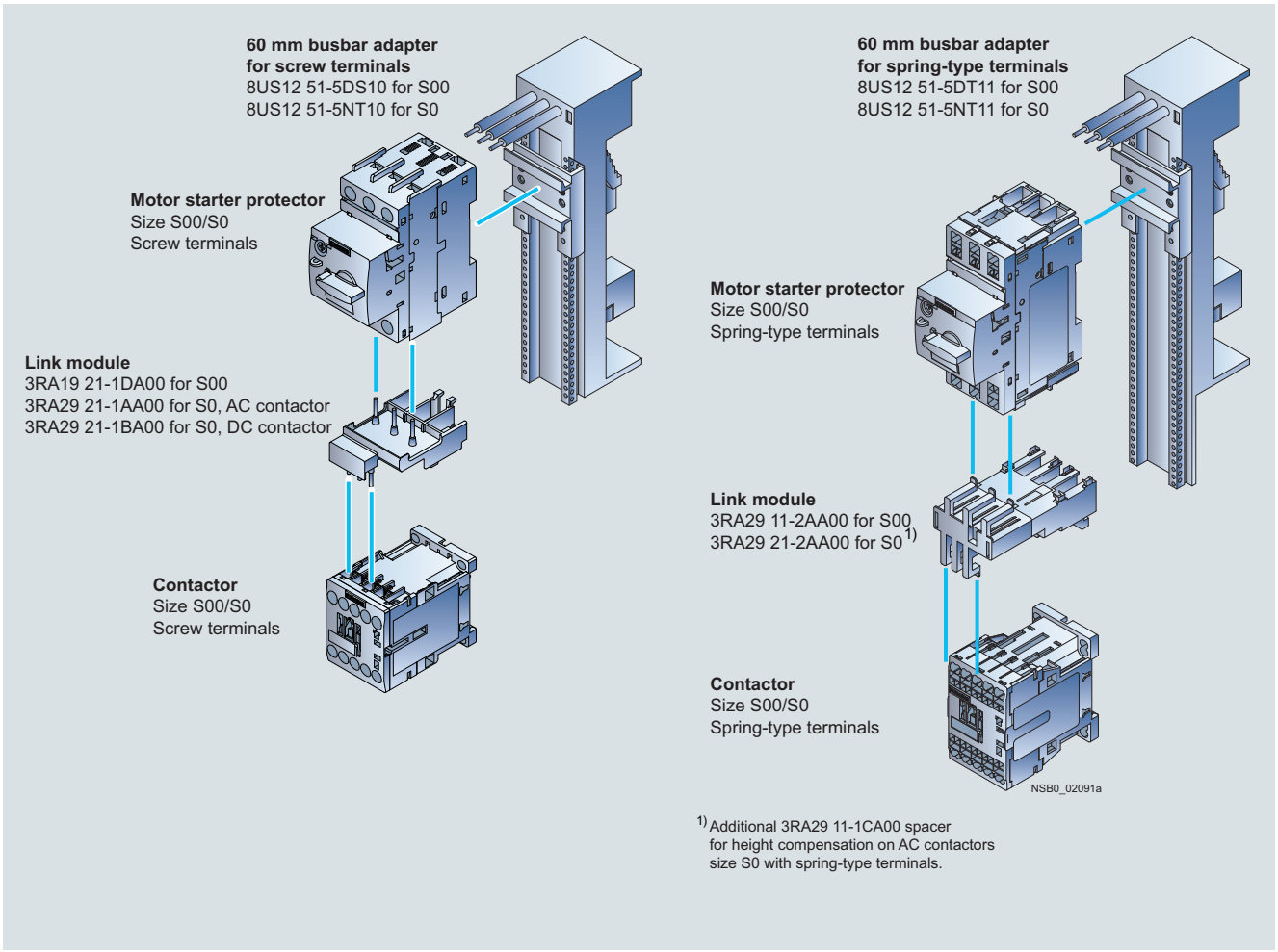
Left: 3RA21 motor starter with screw connection
Center: 3RA21 motor starter with spring-type connection
Right: Motor starter protector combination with screw connection, with contactor with spring-type connection



Left: Motor starter protector combination with solid-state switching device with screw connection
Right: Motor starter protector combination with soft starter with spring-type connection

General data

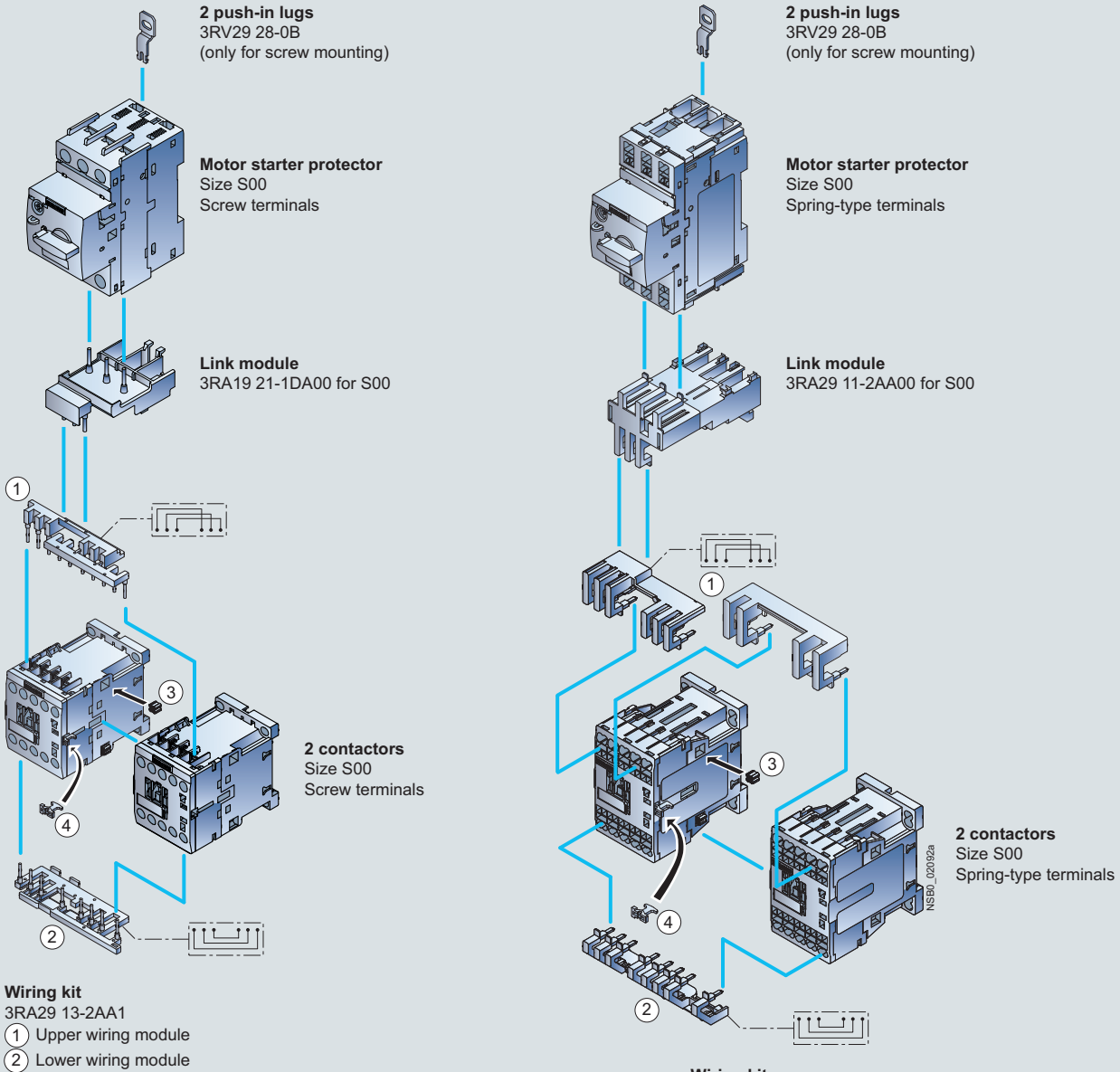
Direct-on-line starting • For 60 mm busbar systems • Sizes S00 and S0



1) Additional 3RA29 11-1CA00 spacer for height compensation on AC contactors size S0 with spring-type terminals.

Left: 3RA21 motor starter for direct-on-line starting with busbar adapters with screw connection
Right: 3RA21 motor starter for direct-on-line starting with busbar adapters with spring-type connection

Reversing duty • For standard rail mounting or screw fixing • Size S00



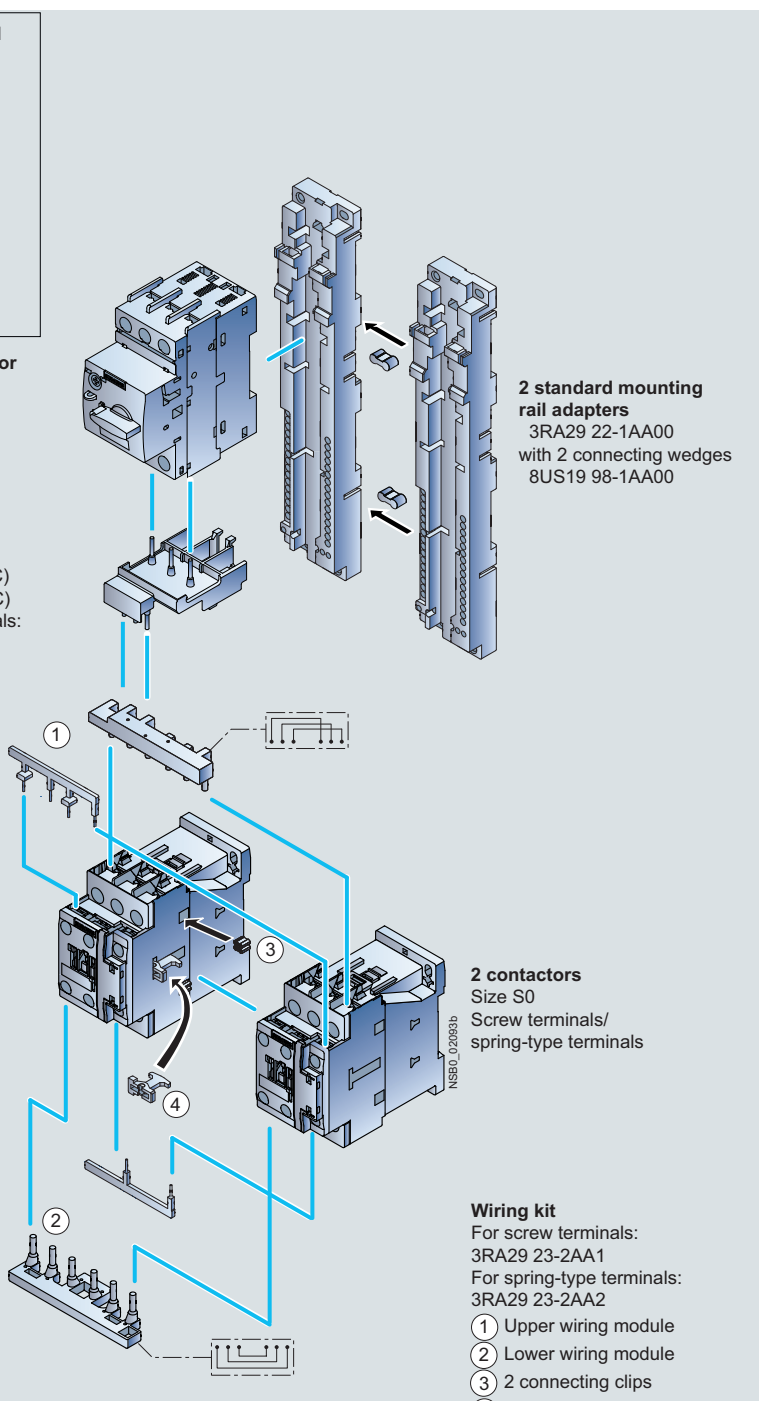
Left: 3RA22 motor starter with screw connection, push-in lugs, 2 contactors for reversing duty and 3RA29 13-2AA1 wiring kit for connecting the contactors (incl. mechanical interlocking and connecting clips)
Right: 3RA22 motor starter with spring-type connection, push-in lugs, 2 contactors for reversing duty and 3RA29 13-2AA2 wiring kit (incl. mechanical interlocking and connecting clips)

General data

Reversing duty • For standard rail mounting • Size S0

RH assembly kit for reversing duty and standard rail mounting in size S0
For screw terminals:
3RA29 23-1BB1
For spring-type terminals:
3RA29 23-1BB2[1)]
Comprising:
1 wiring kit
2 standard mounting rail adapters
2 connecting wedges

[1)] Also includes 3RA29 11-1CA00 spacer for height compensation on AC contactors size S0 with spring-type terminals.



[2)] Additional 3RA29 11-1CA00 spacer for height compensation on AC contactors size S0 with spring-type terminals

3RA22 motor starter for reversing duty and standard rail mounting in size S0
(the version with screw connection is shown in the picture)

Reversing duty • For 60 mm busbar systems • Sizes S00 and S0

RS assembly kit for reversing duty and busbar mounting
Screw connection:
3RA29 13-1DB1 for S00
3RA29 23-1DB1 for S0
For spring-type connection:
3RA29 13-1DB2 for S00
3RA29 23-1DB2 for S0 [1)]
Comprising:
1 wiring kit
1 busbar adapter
1 device holder
2 connecting wedges

[1)] Also includes 3RA29 11-1CA00 spacer for height compensation on AC contactors size S0 with spring-type terminals.

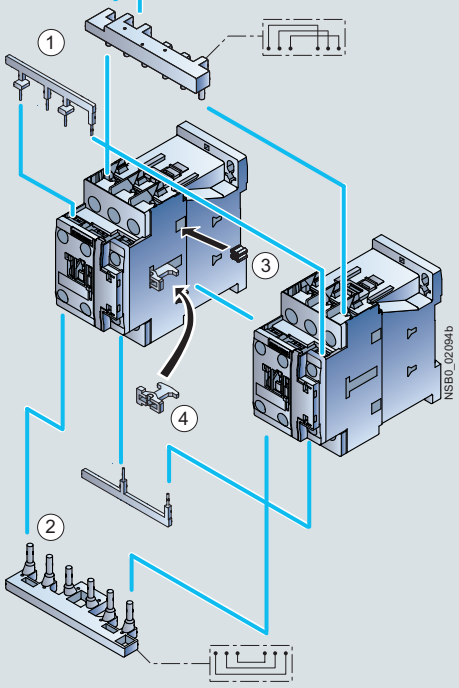
Motor starter protector
Size S00/S0
Screw terminals/
spring-type terminals

Link module
For screw terminals:
3RA19 21-1DA00 for S00
3RA29 21-1AA00 for S0, AC contactor
3RA29 21-1BA00 for S0, DC contactor
For spring-type terminals:
3RA29 11-2AA00 for S00
3RA29 21-2AA00 for S0 [2)]

60 mm busbar adapter
For screw terminals:
8US12 51-5DS10 for S00
8US12 51-5NT10 for S0
For spring-type terminals:
8US12 51-5DT11 for S00
8US12 51-5NT11 for S0

2 connecting wedges
8US19 98-1AA00

60 mm device holder
8US12 51-5AS10



2 contactors
Size S00/S0
Screw terminals/
spring-type terminals

Wiring kit
Screw connection:
3RA29 13-2AA1 for S00
3RA29 23-2AA1 for S0
Spring-type connection:
3RA29 13-2AA2 for S00
3RA29 23-2AA2 for S0
(1) Upper wiring module
(2) Lower wiring module
(3) 2 connecting clips
(4) Mechanical interlock (can be removed if necessary)

[2)] Additional 3RA29 11-1CA00 spacer for height compensation on AC contactors size S0 with spring-type terminals.

3RA22 motor starter for reversing duty and 60 mm standard mounting rail in size S00/S0
(the version with screw connection is shown in the picture)

General data

Order No. scheme

Digit of the Order No.	1st - 3rd	4th	5th	6th	7th		8th	9th	10th	11th	12th		13th	14th	15th	16th
	□□□	□	□	□	**0**	–	□	□	□	□	□	–	□	□	□	□
SIRIUS starters	**3 R A**															
SIRIUS 2nd generation		**2**														
Type of starter (direct-on-line starter = 1, reversing starter = 2)			□													
Size (S00 = 1, S0 = 2)				□												
Setting range for overload release							□	□								
Design type and connection method									□							
Rated power at 460 V AC										□	□					
Integrated auxiliary switches of the contactor													□			
Operating range / solenoid coil circuit (contactor)														□		
Rated control supply voltage (contactor)															□	□
Example	**3 R A**	**2**	**1**	**1**	**0**	**–**	**0**	**B**	**A**	**1**	**5**	**–**	**1**	**A**	**K**	**6**

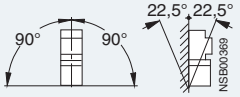
Note:

The Order No. scheme is presented here merely for information purposes and for better understanding of the logic behind the order numbers.

For your orders, please use the order numbers quote in the catalog in the Selection and ordering data.

Technical specifications

Direct-on-line starters/ reversing starters	Size	Connection methods	Mounting	Control voltage	Width W	Height H	Depth D
					mm	mm	mm
Mounting dimensions							
Direct-on-line starters 3RA21.	S00 3RA21 1.	Screw terminals	Standard mounting rails	AC/DC	45	167	97
			Busbar adapters	AC/DC	45	200	155
		Spring-type terminals	Standard mounting rails	AC/DC	45	198	97
			Busbar adapters	AC/DC	45	260	155
	S0 3RA21 2.	Screw terminals	Standard mounting rails	AC	45	193	97
				DC	45	193	107
			Busbar adapters	AC	45	260	155
				DC	45	260	165
		Spring-type terminals	Standard mounting rails	AC/DC	45	243	107
			Busbar adapters	AC/DC	45	260	165
Reversing starters 3RA22.	S00 3RA22 1.	Screw terminals	Standard mounting rails	AC/DC	90	170	97
			Busbar adapters	AC/DC	90	200	155
		Spring-type terminals	Standard mounting rails	AC/DC	90	204	97
			Busbar adapters	AC/DC	90	260	155
	S0 3RA22 2.	Screw terminals	Standard mounting rail adapters	AC	90	265	120.3
				DC	90	265	130
			Busbar adapters	AC	90	260	155
				DC	90	260	165
		Spring-type terminals	Standard mounting rail adapters	AC/DC	90	270	131
			Busbar adapters	AC/DC	90	260	165

Type Size Number of poles			**3RA2. 1** **S00** **3**	**3RA2. 2** **S0** **3**
Mechanics and environment				
Permissible ambient temperature • During operation • Storage and transport		°C °C	-20 ... +60 -55 ... +80	
Weight		kg	0.6 ... 1.5	0.8 ... 2.3
Permissible mounting positions			 Important: Acc. to DIN 43602 start command "I" at the right or top	
Shock resistance (sine-wave pulse)	Acc. to IEC 60086 Part 2-27	*g*	Up to 6	Up to 6
Degree of protection	Acc. to IEC 60947-1		IP20	

More information

Type Size Number of poles			3RA2. 1 S00 3	3RA2. 2 S0 3
General data				
Standards			IEC 60947-1, EN 60947-1 IEC 60947-2, EN 60947-2 IEC 60947-4-1, EN 60947-4-1	
Max. rated current $I_{n\ max}$ (= max. rated operational current I_e)		A	16	32
Permissible ambient temperature		°C °C	-20 ... +60 for operation -55 ... +80 during storage/transport	
Rated operational voltage U_e		V	690	
Rated frequency		Hz	50/60	
Rated insulation voltage U_i (pollution degree 3)		V	690	
Rated impulse withstand voltage U_{imp}		kV	6	
Trip class (CLASS)	Acc. to IEC 60947-4-1, EN 60947-4-1		10	
Rated short-circuit current I_q **at AC 50/60 Hz 400 V acc. to IEC 60947-4-1, EN 60947-4-1**		kA	153	
Power loss $P_{v\ max}$ **of all main current paths** Dependent on the rated current I_n (upper setting range)	Up to 1.25 A 1.6 ... 6.3 A 8 ... 12 A 16 A 5 ... 6.3 A 8 ... 12 A 16 ... 32 A	W W W W W W W	2 2.3 3.5 4.3 -- -- --	-- -- -- -- 2.3 3.5 4.3
Power consumption of the solenoid coils for contactors as a function of the standard output P of the motor (when coil is cold and U_s, 50 Hz)				
• AC operation				
- Closing	Up to 4 kW 5.5 ... 7.5 kW Up to 5.5 kW 7.5 ... 15 kW P.f.	VA VA VA VA	27 37 -- -- 0.8	-- -- 65 77 0.82
- Closed	Up to 4 kW 5.5 ... 7.5 kW Up to 5.5 kW 7.5 ... 15 kW P.f.	VA VA VA VA	4.2 5.7 -- -- 0.25	-- -- 8.5 9.8 0.25
• DC operation	Closing = Closed	W	4	5.9
Solenoid coil operating range for contactors			0.8 ... 1.1 x U_s	
	Lower limit at 55 °C At 60 °C		0.8 x U_s 0.85 x U_s	-- --
Endurance of the motor starter protector				
• Mechanical endurance	Operating cycles		100000	
• Electrical endurance	Operating cycles		100000	
• Max. switching frequency per hour (motor starts)		1/h	15	
Endurance of contactor				
• Mechanical endurance	Operating cycles		30 million	10 million
• Electrical endurance	Operating cycles		See endurance characteristic curves of the contactors --> Chapter 3 "Controls – Contactors and Contactor Assemblies"	
Shock resistance (sine-wave pulse)	Acc. to IEC 60086 Part 2-27	*g*	Up to 6	Up to 6
Degree of protection	Acc. to IEC 60947-1		IP20	
Touch protection	Acc. to EN 50274		Finger-safe	
Phase failure sensitivity of the motor starter protector	Acc. to IEC 60947-1, EN 60947-1		Yes	
Isolating features of the motor starter protector	Acc. to IEC 60947-2, EN 60947-2		Yes	
Main control and EMERGENCY-STOP switch characteristics of the motor starter protector and accessories	Acc. to IEC 60204-1, EN 60204-1		Yes (with overvoltage releases of category "1" under conditions of proper use)	
Protective separation between main and auxiliary circuits	Acc. to EN 60947-1, Appendix N	V	Up to 400	
Mirror contacts for contactors			Yes	Yes, from main contact to auxiliary NC contact

General data

Type		SIRIUS 3RA2 Motor Starters	
Connection type		**Screw terminals**	**Spring-type terminals**
Conductor cross-sections for main conductors Size S00			
		Motor starter protectors, contactors	**Motor starter protectors, contactors**
Terminal screw		M3, Pozidriv size 2	--
Operating devices	mm	∅ 5 ... 6	3.0 x 0.5 and 3.5 x 0.5
Prescribed tightening torque	Nm	0.8 ... 1.2	--
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected			
• Solid and stranded	mm^2 mm^2 mm^2	2 x (0.5 … 1.5)[1] only for contactors, 2 x (0.75 ... 2.5)[1], max. 2 x 4	2 x (0.5 ... 4)
• Finely stranded without end sleeve	mm^2	--	2 x (0.5 ... 2.5)
• Finely stranded with end sleeves (DIN 46 228 T1)	mm^2 mm^2	2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1]	2 x (0.5 ... 2.5)
• AWG cables, solid or stranded	AWG AWG AWG	2 x (20 … 16)[1] only for contactors, 2 x (18 ... 14)[1], 2 x 12	2 x (20 ... 12)
Max. external diameter of the conductor insulation	mm	--	3.6
Conductor cross-sections for main conductors Size S0			
		Motor starter protectors, contactors	**Motor starter protectors, contactors**
Terminal screw		M4, Pozidriv size 2	--
Operating devices	mm	∅ 5 ... 6	3.0 x 0.5 and 3.5 x 0.5
Prescribed tightening torque	Nm	2.0 ... 2.5	--
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected			
• Solid and stranded	mm^2 mm^2	2 x (1.0 ... 2.5)[1], 2 x (2.5 ... 10)[1]	2 x (1.0 ... 10)
• Finely stranded without end sleeve	mm^2	--	2 x (1.0 ... 6.0)
• Finely stranded with end sleeves (DIN 46 228 T1)	mm^2 mm^2 mm^2	2 x (1.0 ... 2.5)[1], 2 x (2.5 ... 6)[1] max. 1 x 10	2 x (1.0 ... 6.0)
• AWG cables, solid or stranded	AWG AWG	2 x (16 ... 12)[1], 2 x (14 ... 8)[1]	2 x (18 ... 8)
Max. external diameter of the conductor insulation	mm	--	3.6
Conductor cross-sections for auxiliary conductors, Size S00/S0			
		Contactors (basic unit), motor starter protectors (accessories), contactors (mountable accessories), overload relays	**Contactors S00** / **Contactors S0, motor starter protectors (accessories), contactors (accessories), overload relays**
Terminal screw		M3, Pozidriv size 2	--
Operating devices	mm	∅ 5 ... 6	3.0 x 0.5 and 3.5 x 0.5
Prescribed tightening torque	Nm	0.8 ... 1.2	--
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected			
• Solid and stranded	mm^2 mm^2 mm^2	2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1], max. 2 x 4 only for contactors S00	2 x (0.5 ... 4) / 2 x (0.5 ... 2.5)
• Finely stranded without end sleeve	mm^2	--	2 x (0.5 ... 2.5) / 2 x (0.5 ... 1.5)
• Finely stranded with end sleeve	mm^2 mm^2	2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1]	2 x (0.5 ... 2.5) / 2 x (0.5 ... 1.5)
• AWG cables, solid or stranded	AWG AWG AWG	2 x (20 ... 16)[1], 2 x (18 ... 14)[1], 2 x 12 only for contactors S00	2 x (20 ... 12) / 2 x (20 ... 14)
Max. external diameter of the conductor insulation	mm	--	3.6 / 3.6

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in the range specified. If identical cross-sections are used, this restriction does not apply.

Selection and ordering data

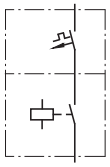

3RA21 10


3RA21 20


3RA21 10


3RA21 20

Direct-on-line starting



Rated control supply voltage 50/60 Hz 110/120 V AC
With screw connections

- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted due to the modular system.
- Integrated auxiliary switches:
  - Contactor size S00: 1 NO;
  - Contactor size S0: 1 NO + 1 NC

Combination Starter, UL508 Type F
All size S00 and S0 devices can be applied as Combination Starters with the addition of either of these line side connectors: 3RV29 28-1H, 3RV29 25-5EB or 3RV29 28-1K.

Size	UL Data							FLA setting range inverse-time delayed overload release	Consisting of the following single devices			Assembled starter	Weight approx.
	Single-phase HP ratings		Three-phase[2] HP ratings				SCCR at 480 V		Motor starter protector	+ Contactor	+ Link module + Busbar adapter[3]	Screw terminals Order No.	
	115 V	230 V	200 V	230 V	460 V	575 V	kA	A					kg
Selection depends on motor full load amps									**3RV20**	**3RT20**	**3RA**		
S00	--	--	--	--	--	--	65	0.14…0.2	11-0BA10	15-1AK61	1921-1DA00	**3RA21 10-0B□15-1AK6**	0.575
	--	--	--	--	--	--	65	0.18…0.25	11-0CA10		+ 8US1251-	**3RA21 10-0C□15-1AK6**	0.575
	--	--	--	--	--	--	65	0.22…0.32	11-0DA10		5DS10	**3RA21 10-0D□15-1AK6**	0.575
	--	--	--	--	--	--	65	0.28…0.4	11-0EA10			**3RA21 10-0E□15-1AK6**	0.575
	--	--	--	--	--	--	65	0.35…0.5	11-0FA10			**3RA21 10-0F□15-1AK6**	0.575
	--	--	--	--	--	--	65	0.45…0.63	11-0GA10			**3RA21 10-0G□15-1AK6**	0.575
	--	--	--	--	--	--	65	0.55…0.8	11-0HA10			**3RA21 10-0H□15-1AK6**	0.575
	--	--	--	--	--	1/2	65	0.7… 1	11-0JA10			**3RA21 10-0J□15-1AK6**	0.575
	--	--	--	--	1/2	1/2	65	0.9… 1.25	11-0KA10			**3RA21 10-0K□15-1AK6**	0.575
	--	1/10	--	--	3/4	3/4	65	1.1… 1.6	11-1AA10			**3RA21 10-1A□15-1AK6**	0.575
	--	1/8	--	--	3/4	1	65	1.4… 2	11-1BA10			**3RA21 10-1B□15-1AK6**	0.575
	--	1/6	1/2	1/2	1	1 1/2	65	1.8… 2.5	11-1CA10			**3RA21 10-1C□15-1AK6**	0.575
	1/10	1/4	1/2	3/4	1 1/2	2	65	2.2… 3.2	11-1DA10			**3RA21 10-1D□15-1AK6**	0.575
	1/8	1/3	3/4	3/4	2	3	65	2.8… 4	11-1EA10			**3RA21 10-1E□15-1AK6**	0.575
	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA10			**3RA21 10-1F□15-1AK6**	0.575
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA10			**3RA21 10-1G□15-1AK6**	0.575
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA10	16-1AK61		**3RA21 10-1H□16-1AK6**	0.575
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA10			**3RA21 10-1J□16-1AK6**	0.575
	1/2	2	3	3	7 1/2	10	65	9… 12	11-1KA10	17-1AK61		**3RA21 10-1K□17-1AK6**	0.575
	1	2	3	5	10	--	65	11… 16	11-4AA10	18-1AK61		**3RA21 10-4A□18-1AK6**	0.575
S0	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA10	24-1AK60	2921-1AA00	**3RA21 20-1F□24-0AK6**	0.761
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA10		+ 8US1251-	**3RA21 20-1G□24-0AK6**	0.761
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA10		5NT10	**3RA21 20-1H□24-0AK6**	0.761
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA10			**3RA21 20-1J□24-0AK6**	0.761
	1/2	2	3	3	7 1/2	10	65	9… 12.5	11-1KA10			**3RA21 20-1K□24-0AK6**	0.761
	1	2	3	5	10	--	65	11… 16	21-4AA10	26-1AK60		**3RA21 20-4A□26-0AK6**	0.761
	1 1/2	3	5	5	10	--	65	14… 20	21-4BA10			**3RA21 20-4B□26-0AK6**	0.761
	1 1/2	3	5	7 1/2	15	--	50	17… 22	21-4CA10	27-1AK60		**3RA21 20-4C□27-0AK6**	0.761
	2	3	5	7 1/2	15	--	50	20… 25	21-4DA10			**3RA21 20-4D□27-0AK6**	0.761
	2	5	7 1/2	10	20	--	50	27… 32	21-4EA10			**3RA21 20-4E□27-0AK6**	0.761

				Add. weight
Order No. supplement for mounting onto standard mounting rail or screw fixing Screw fixing with 1 push-in lug each per motor starter is possible (see "Accessories for Direct-On-Line and Reversing Starters").			**A**	
Order No. supplement for mounting onto 60 mm busbar **With busbar adapter**	for size S00 for size S0	**1** **2**	**D** **D**	0.263 0.295

[1] For auxiliary switches see Accessories page 6/21.

[2] Selection depends on the motor full load amps. HP ratings for reference only.

[3] Used only for mounting starter on 8US Fast Bus busbar systems.

6

3RA21 direct-on-line starters 50/60 Hz 110/120 V AC

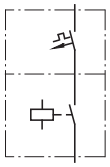

3RA21 10


3RA21 20


3RA21 10


3RA21 20

Direct-on-line starting



Rated control supply voltage 50/60 Hz 110/120 V AC
With spring-type connection

- These starters can be assembled in the field without tools by simply snapping the components together. Follow the simple component selection system to form a starter.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted due to the modular system.
- Integrated auxiliary switches:
  - Contactor size S00: 1 NO;
  - Contactor size S0: 1 NO + 1 NC

Combination Starter, UL508 Type F
All size S00 and S0 devices can be applied as Combination Starters with the addition of either of these line side connectors: 3RV29 28-1H, 3RV29 25-5EB or 3RV29 28-1K.

Size	UL Data							FLA setting range inverse-time delayed overload release	Consisting of the following single devices				Not available pre-assembled	Weight approx.
	Single-phase HP ratings		Three-phase[2] HP ratings				SCCR at 480 V		Motor starter protector	+ Contactor	+ Link module	+ Busbar adapter[3]	Spring-type terminals	
	115 V	230 V	200 V	230 V	460 V	575 V							Order No.	
							kA	A						kg
Selection depends on motor full load amps									**3RV20**	**3RT20**	**3RA**	**8US12**		
S00	--	--	--	--	--	--	65	0.14…0.2	11-0BA20	15-2AK61	2911-2AA00	51-5DT11		0.641
	--	--	--	--	--	--	65	0.18…0.25	11-0CA20					0.641
	--	--	--	--	--	--	65	0.22…0.32	11-0DA20					0.641
	--	--	--	--	--	--	65	0.28…0.4	11-0EA20					0.641
	--	--	--	--	--	--	65	0.35…0.5	11-0FA20					0.641
	--	--	--	--	--	--	65	0.45…0.63	11-0GA20					0.641
	--	--	--	--	--	--	65	0.55…0.8	11-0HA20					0.641
	--	--	--	--	--	1/2	65	0.7… 1	11-0JA20					0.641
	--	--	--	--	1/2	1/2	65	0.9… 1.25	11-0KA20					0.641
	--	1/10	--	--	3/4	3/4	65	1.1… 1.6	11-1AA20					0.641
	--	1/8	--	--	3/4	1	65	1.4… 2	11-1BA20					0.641
	--	1/6	1/2	1/2	1	1 1/2	65	1.8… 2.5	11-1CA20					0.641
	1/10	1/4	1/2	3/4	1 1/2	2	65	2.2… 3.2	11-1DA20					0.641
	1/8	1/3	3/4	3/4	2	3	65	2.8… 4	11-1EA20					0.641
	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA20					0.641
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA20					0.641
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA20	16-2AK61				0.641
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA20					0.641
	1/2	2	3	3	7 1/2	10	65	9… 12	11-1KA20	17-1AK61				0.641
	1	2	3	5	10	--	65	11… 16	11-4AA20	18-2AK61				0.641
S0	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA20	24-2AK60	2921-2AA00[4]	51-5NT11		0.925
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA20		+2911-1CA00[5]			0.925
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA20					0.925
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA20					0.925
	1/2	2	3	3	7 1/2	10	65	9… 12.5	11-1KA20					0.925
	1	2	3	5	10	--	65	11… 16	21-4AA20	26-2AK60				0.925
	1 1/2	3	5	5	10	--	65	14… 20	21-4BA20					0.925
	1 1/2	3	5	7 1/2	15	--	50	17… 22	21-4CA20	27-2AK60				0.925
	2	3	5	7 1/2	15	--	50	20… 25	21-4DA20					0.925
	2	5	7 1/2	10	20	--	50	27… 32	21-4EA20					0.925

Screw fixing with 1 push-in lug each per motor starter is possible (see "Accessories for Direct-On-Line and Reversing Starters").

[1] For auxiliary switches see Accessories page 6/21.

[2] Selection depends on motor full load amps. HP ratings for reference only.

[3] Use only for mounting starter on 8US Fast Bus busbar systems.

[4] Mounting on standard mounting rails with adapter (3RA29 22-1AA00) is possible for feeder-orientated assembly, in which case the contactor must be screwed onto the adapter.

[5] For the AC version size S0 with spring loaded terminals, a 3RA29 11-1CA00 spacer is required for height compensation of the contactor.

Illustrations are approximate

3RA21 direct-on-line starters 24 V DC

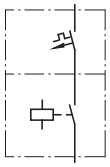

3RA21 10


3RA21 20


3RA21 10


3RA21 20

Direct-on-line starting



Rated control supply voltage 24 V DC
With screw connections

- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted due to the modular system.
- Integrated auxiliary switches:
  - Contactor size S00: 1 NO;
  - Contactor size S0: 1 NO + 1 NC

Combination Starter, UL508 Type F
All size S00 and S0 devices can be applied as Combination Starters with the addition of either of these line side connectors: 3RV29 28-1H, 3RV29 25-5EB or 3RV29 28-1K.

Size	UL Data							FLA setting range inverse-time delayed overload release	Consisting of the following single devices			Assembled starter	Weight approx.
	Single-phase HP ratings		Three-phase[2] HP ratings				SCCR at 480 V		Motor starter protector	+ Contactor	+ Link module + Busbar adapter[3]	Screw terminals Order No.	
	115 V	230 V	200 V	230 V	460 V	575 V	kA	A					kg
Selection depends on motor full load amps									**3RV20**	**3RT20**	**3RA**		
S00	--	--	--	--	--	--	65	0.14…0.2	11-0BA10	15-1BB41	1921-1DA00	**3RA21 10-0B□15-1BB4**	0.630
	--	--	--	--	--	--	65	0.18…0.25	11-0CA10		+ 8US1251-	**3RA21 10-0C□15-1BB4**	0.630
	--	--	--	--	--	--	65	0.22…0.32	11-0DA10		5DS10	**3RA21 10-0D□15-1BB4**	0.630
	--	--	--	--	--	--	65	0.28…0.4	11-0EA10			**3RA21 10-0E□15-1BB4**	0.630
	--	--	--	--	--	--	65	0.35…0.5	11-0FA10			**3RA21 10-0F□15-1BB4**	0.630
	--	--	--	--	--	--	65	0.45…0.63	11-0GA10			**3RA21 10-0G□15-1BB4**	0.630
	--	--	--	--	--	--	65	0.55…0.8	11-0HA10			**3RA21 10-0H□15-1BB4**	0.630
	--	--	--	--	--	1/2	65	0.7… 1	11-0JA10			**3RA21 10-0J□15-1BB4**	0.630
	--	--	--	--	1/2	1/2	65	0.9… 1.25	11-0KA10			**3RA21 10-0K□15-1BB4**	0.630
	--	1/10	--	--	3/4	3/4	65	1.1… 1.6	11-1AA10			**3RA21 10-1A□15-1BB4**	0.630
	--	1/8	--	--	3/4	1	65	1.4… 2	11-1BA10			**3RA21 10-1B□15-1BB4**	0.630
	--	1/6	1/2	1/2	1	1 1/2	65	1.8… 2.5	11-1CA10			**3RA21 10-1C□15-1BB4**	0.630
	1/10	1/4	1/2	3/4	1 1/2	2	65	2.2… 3.2	11-1DA10			**3RA21 10-1D□15-1BB4**	0.630
	1/8	1/3	3/4	3/4	2	3	65	2.8… 4	11-1EA10			**3RA21 10-1E□15-1BB4**	0.630
	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA10			**3RA21 10-1F□15-1BB4**	0.630
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA10			**3RA21 10-1G□15-1BB4**	0.630
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA10	16-1BB41		**3RA21 10-1H□16-1BB4**	0.630
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA10			**3RA21 10-1J□16-1BB4**	0.630
	1/2	2	3	3	7 1/2	10	65	9… 12	11-1KA10	17-1BB41		**3RA21 10-1K□17-1BB4**	0.630
	1	2	3	5	10	--	65	11… 16	11-4AA10	18-1BB41		**3RA21 10-4A□18-1BB4**	0.630
S0	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA10	24-1BB40	2921-1BA00	**3RA21 20-1F□24-0BB4**	0.948
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA10		+ 8US1251-	**3RA21 20-1G□24-0BB4**	0.948
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA10		5NT10	**3RA21 20-1H□24-0BB4**	0.948
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA10			**3RA21 20-1J□24-0BB4**	0.948
	1/2	2	3	3	7 1/2	10	65	9… 12.5	11-1KA10			**3RA21 20-1K□24-0BB4**	0.948
	1	2	3	5	10	--	65	11… 16	21-4AA10	26-1BB40		**3RA21 20-4A□26-0BB4**	0.948
	1 1/2	3	5	5	10	--	65	14… 20	21-4BA10			**3RA21 20-4B□26-0BB4**	0.948
	1 1/2	3	5	7 1/2	15	--	50	17… 22	21-4CA10	27-1BB40		**3RA21 20-4C□27-0BB4**	0.948
	2	3	5	7 1/2	15	--	50	20… 25	21-4DA10			**3RA21 20-4D□27-0BB4**	0.948
	2	5	7 1/2	10	20	--	50	27… 32	21-4EA10			**3RA21 20-4E□27-0BB4**	0.948

				Add. weight
Order No. supplement for mounting onto standard mounting rail or screw fixing Screw fixing with 1 push-in lug each per motor starter is possible (see "Accessories for Direct-On-Line and Reversing Starters").			**A**	
Order No. supplement for mounting onto 60 mm busbar	for size S00	**1**	**D**	0.263
With busbar adapter	for size S0	**2**	**D**	0.301

1) For auxiliary switches see Accessories page 6/21.

2) Selection depends on the concrete motor full load amps. HP ratings for reference only.

3) Use only for mounting starter on 8US Fast Bus busbar systems.

6

3RA21 direct-on-line starters 24 V DC

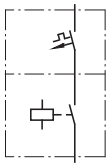

3RA21 10


3RA21 20


3RA21 10


3RA21 20

Direct-on-line starting



Rated control supply voltage 24 V DC
With spring-type connection

- These starters can be assembled in the field without tools by simply snapping the components together. Follow the simple component selection system to form a starter.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted due to the modular system.
- Integrated auxiliary switches:
  - Contactor size S00: 1 NO;
  - Contactor size S0: 1 NO + 1 NC

Combination Starter, UL508 Type F
All size S00 and S0 devices can be applied as Combination Starters with the addition of either of these line side connectors: 3RV29 28-1H, 3RV29 25-5EB or 3RV29 28-1K.

Size	UL Data							FLA setting range inverse-time delayed overload release	Consisting of the following single devices				Not available pre-assembled	Weight approx.
	Single-phase HP ratings		Three-phase[2] HP ratings				SCCR at 480 V		Motor starter protector	+ Contactor	+ Link module	+ Busbar adapter[3]	Spring-type terminals	
	115 V	230 V	200 V	230 V	460 V	575 V							Order No.	
							kA	A						kg
Selection depends on motor full load amps									**3RV20**	**3RT20**	**3RA**	**8US12**		
S00	--	--	--	--	--	--	65	0.14…0.2	11-0BA20	15-2BB41	2911-2AA00	51-5DT11		0.641
	--	--	--	--	--	--	65	0.18…0.25	11-0CA20					0.641
	--	--	--	--	--	--	65	0.22…0.32	11-0DA20					0.641
	--	--	--	--	--	--	65	0.28…0.4	11-0EA20					0.641
	--	--	--	--	--	--	65	0.35…0.5	11-0FA20					0.641
	--	--	--	--	--	--	65	0.45…0.63	11-0GA20					0.641
	--	--	--	--	--	--	65	0.55…0.8	11-0HA20					0.641
	--	--	--	--	--	1/2	65	0.7… 1	11-0JA20					0.641
	--	--	--	--	1/2	1/2	65	0.9… 1.25	11-0KA20					0.641
	--	1/10	--	--	3/4	3/4	65	1.1… 1.6	11-1AA20					0.641
	--	1/8	--	--	3/4	1	65	1.4… 2	11-1BA20					0.641
	--	1/6	1/2	1/2	1	1 1/2	65	1.8… 2.5	11-1CA20					0.641
	1/10	1/4	1/2	3/4	1 1/2	2	65	2.2… 3.2	11-1DA20					0.641
	1/8	1/3	3/4	3/4	2	3	65	2.8… 4	11-1EA20					0.641
	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA20					0.641
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA20					0.641
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA20	16-2BB41				0.641
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA20					0.641
	1/2	2	3	3	7 1/2	10	65	9… 12	11-1KA20	17-2BB41				0.641
	1	2	3	5	10	--	65	11… 16	11-4AA20	18-2BB41				0.641
S0	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA20	24-2BB40	2921-2AA00	51-5NT11		0.925
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA20					0.925
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA20					0.925
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA20					0.925
	1/2	2	3	3	7 1/2	10	65	9… 12.5	11-1KA20					0.925
	1	2	3	5	10	--	65	11… 16	21-4AA20	26-2BB40				0.925
	1 1/2	3	5	5	10	--	65	14… 20	21-4BA20					0.925
	1 1/2	3	5	7 1/2	15	--	50	17… 22	21-4CA20	27-2BB40				0.925
	2	3	5	7 1/2	15	--	50	20… 25	21-4DA20					0.925
	2	5	7 1/2	10	20	--	50	27… 32	21-4EA20					0.925

Screw fixing with 1 push-in lug each per motor starter is possible.

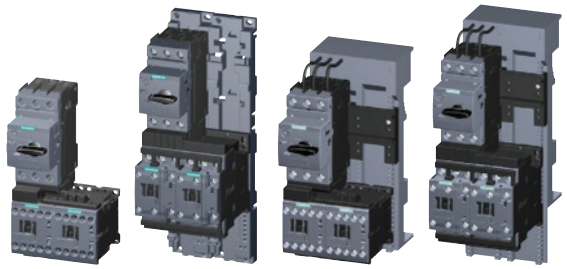
1) For auxiliary switches see Accessories page 6/21.

2) Selection depends on the motor full load amps. HP ratings for reference only.

3) Used only for mounting starter on 8US Fast Bus busbar systems.

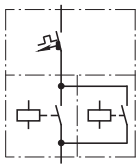
4) Mounting on standard mounting rails or with screws (3RA29 22-1AA00) is possible for feeder-orientated assembly, in which case the contactor must be screwed onto the adapter.

Selection and ordering data



3RA22 10 3RA22 20 3RA22 10 3RA22 20

Reversing duty



Rated control supply voltage 50/60 Hz 110/120 V AC
With screw connections

- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted due to the modular system.
- With the contactor S0, an integrated NO contact is available for free use.

Combination Starter, UL508 Type F
All size S00 and S0 devices can be applied as Combination Starters with the addition of either of these line side connectors: 3RV29 28-1H, 3RV29 25-5EB or 3RV29 28-1K.

Size	UL Data							FLA setting range inverse-time delayed overload release	Consisting of the following single devices			Assembled starter	Weight approx.
	Single-phase HP ratings		Three-phase[2] HP ratings				SCCR at 480 V		Motor starter protector	+ 2 contactors	+ Link module + Assembly kit RH/RS[3]	Screw terminals Order No.	
	115 V	230 V	200 V	230 V	460 V	575 V	kA	A					kg
Selection depends on motor full load amps									**3RV20**	**3RT20**	**3RA**		
S00	--	--	--	--	--	--	65	0.14…0.2	11-0BA10	15-1AK62	1921-1DA00	**3RA22 10-0B□15-2AK6**	0.824
	--	--	--	--	--	--	65	0.18…0.25	11-0CA10		+ 2913-2AA1[4]	**3RA22 10-0C□15-2AK6**	0.824
	--	--	--	--	--	--	65	0.22…0.32	11-0DA10		+ 2913-1DB1 (RS)	**3RA22 10-0D□15-2AK6**	0.824
	--	--	--	--	--	--	65	0.28…0.4	11-0EA10			**3RA22 10-0E□15-2AK6**	0.824
	--	--	--	--	--	--	65	0.35…0.5	11-0FA10			**3RA22 10-0F□15-2AK6**	0.824
	--	--	--	--	--	--	65	0.45…0.63	11-0GA10			**3RA22 10-0G□15-2AK6**	0.824
	--	--	--	--	--	--	65	0.55…0.8	11-0HA10			**3RA22 10-0H□15-2AK6**	0.824
	--	--	--	--	--	1/2	65	0.7… 1	11-0JA10			**3RA22 10-0J□15-2AK6**	0.824
	--	--	--	--	1/2	1/2	65	0.9… 1.25	11-0KA10			**3RA22 10-0K□15-2AK6**	0.824
	--	1/10	--	--	3/4	3/4	65	1.1… 1.6	11-1AA10			**3RA22 10-1A□15-2AK6**	0.824
	--	1/8	--	--	3/4	1	65	1.4… 2	11-1BA10			**3RA22 10-1B□15-2AK6**	0.824
	--	1/6	1/2	1/2	1	1 1/2	65	1.8… 2.5	11-1CA10			**3RA22 10-1C□15-2AK6**	0.824
	1/10	1/4	1/2	3/4	1 1/2	2	65	2.2… 3.2	11-1DA10			**3RA22 10-1D□15-2AK6**	0.824
	1/8	1/3	3/4	3/4	2	3	65	2.8… 4	11-1EA10			**3RA22 10-1E□15-2AK6**	0.824
	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA10			**3RA22 10-1F□15-2AK6**	0.824
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA10			**3RA22 10-1G□15-2AK6**	0.824
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA10	16-1AK62		**3RA22 10-1H□16-2AK6**	0.824
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA10			**3RA22 10-1J□16-2AK6**	0.824
	1/2	2	3	3	7 1/2	10	65	9… 12	11-1KA10	17-1AK62		**3RA22 10-1K□17-2AK6**	0.824
	1	2	3	5	10	--	65	11… 16	11-4AA10	18-1AK62		**3RA22 10-4A□18-2AK6**	0.824
S0	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA10	24-1AK60	2921-1AA00	**3RA22 20-1F□24-0AK6**	1.434
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA10		+ 2923-1BB1 (RH)	**3RA22 20-1G□24-0AK6**	1.434
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA10		+ 2923-1DB1 (RS)	**3RA22 20-1H□24-0AK6**	1.434
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA10			**3RA22 20-1J□24-0AK6**	1.434
	1/2	2	3	3	7 1/2	10	65	9… 12.5	11-1KA10			**3RA22 20-1K□24-0AK6**	1.434
	1	2	3	5	10	--	65	11… 16	21-4AA10	26-1AK60		**3RA22 20-4A□26-0AK6**	1.434
	1 1/2	3	5	5	10	--	65	14… 20	21-4BA10			**3RA22 20-4B□26-0AK6**	1.434
	1 1/2	3	5	7 1/2	15	--	50	17… 22	21-4CA10	27-1AK60		**3RA22 20-4C□27-0AK6**	1.434
	2	3	5	7 1/2	15	--	50	20… 25	21-4DA10			**3RA22 20-4D□27-0AK6**	1.434
	2	5	7 1/2	10	20	--	50	27… 32	21-4EA10			**3RA22 20-4E□27-0AK6**	1.434

			Add. weight
Order No. supplement for mounting onto standard mounting rail or screw fixing			
• Without standard mounting rail adapter for size S00[4]		**1** **A**	
• With 2 standard mounting rail adapters for size S0		**2** **B**	
Screw fixing with 2 push-in lugs each per motor starter is possible			
Order No. supplement for mounting onto 60 mm busbar	for size S00	**1** **D**	0.486
With 8US Fast Bus busbar adapter	for size S0	**2** **D**	0.293

[1] For push-in lugs and auxiliary switches see Accessories.

[2] Selection depends on the motor full load amps. HP ratings for reference only.

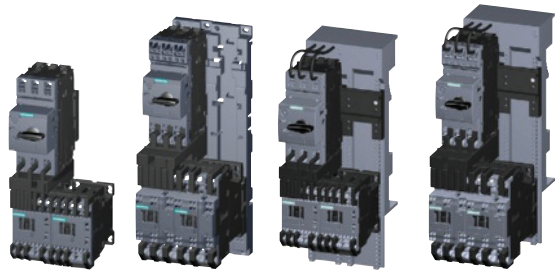
[3] According to ordering option:
RH = assembly kit for reversing duty with standard rail mounting adapter in size S0.
RS = assembly kit for reversing duty with 8US Fast Bus busbar mounting.

[4] With standard rail mounting or screw fixing, the 3RA29 13-2AA1 wiring kit is required for size S00.

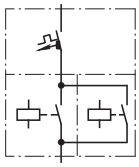
6

Illustrations are approximate

3RA22 reversing starters 50/60 Hz 110/120 V AC


3RA22 10 3RA22 20 3RA22 10 3RA22 20

Reversing duty



Rated control supply voltage 50/60 Hz 110/120 V AC
With spring-type connection

- These starters can be assembled in the field without tools by simply snapping the components together. Follow the simple component selection system to form a starter.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted due to the modular system.
- With the contactor S0, an integrated NO contact is available for free use.

Combination Starter, UL508 Type F
All size S00 and S0 devices can be applied as Combination Starters with the addition of either of these line side connectors: 3RV29 28-1H, 3RV29 25-5EB or 3RV29 28-1K.

Size	UL Data							FLA setting range inverse-time delayed overload release	Consisting of the following single devices				Not available pre-assembled	Weight approx.
	Single-phase HP ratings		Three-phase[2] HP ratings				SCCR at 480 V		Motor starter protector	+ 2 contactors	Standard rail or screw mounting + Link module + Assembly kit (RH)[3]	8US Busbar mounting system + Link module + Assembly kit (RS)[3]	Spring-type terminals	
	115 V	230 V	200 V	230 V	460 V	575 V							Order No.	
							kA	A						kg
Selection depends on motor full load amps									**3RV20**	**3RT20**	**3RA**	**3RA**		
S00	--	--	--	--	--	--	65	0.14…0.2	11-0BA20	15-2AK62	2911-2AA00	2911-2AA00		0.641
	--	--	--	--	--	--	65	0.18…0.25	11-0CA20		+ 2913-2AA2[4]	+ 2913-1DB2[5]		0.641
	--	--	--	--	--	--	65	0.22…0.32	11-0DA20					0.641
	--	--	--	--	--	--	65	0.28…0.4	11-0EA20					0.641
	--	--	--	--	--	--	65	0.35…0.5	11-0FA20					0.641
	--	--	--	--	--	--	65	0.45…0.63	11-0GA20					0.641
	--	--	--	--	--	--	65	0.55…0.8	11-0HA20					0.641
	--	--	--	--	--	1/2	65	0.7… 1	11-0JA20					0.641
	--	--	--	--	1/2	1/2	65	0.9… 1.25	11-0KA20					0.641
	--	1/10	--	--	3/4	3/4	65	1.1… 1.6	11-1AA20					0.641
	--	1/8	--	--	3/4	1	65	1.4… 2	11-1BA20					0.641
	--	1/6	1/2	1/2	1	1 1/2	65	1.8… 2.5	11-1CA20					0.641
	1/10	1/4	1/2	3/4	1 1/2	2	65	2.2… 3.2	11-1DA20					0.641
	1/8	1/3	3/4	3/4	2	3	65	2.8… 4	11-1EA20					0.641
	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA20					0.641
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA20					0.641
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA20	16-2AK62				0.641
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA20					0.641
	1/2	2	3	3	7 1/2	10	65	9… 12	11-1KA20	17-1AK62				0.641
	1	2	3	5	10	--	65	11… 16	11-4AA20	18-2AK62				0.641
S0	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA20	24-2AK60	2921-2AA00	2921-2AA00		0.925
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA20		+ 2923-1BB2[5]	+ 2923-1DB2[5]		0.925
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA20					0.925
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA20					0.925
	1/2	2	3	3	7 1/2	10	65	9… 12.5	11-1KA20					0.925
	1	2	3	5	10	--	65	11… 16	21-4AA20	26-2AK60				0.925
	1 1/2	3	5	5	10	--	65	14… 20	21-4BA20					0.925
	1 1/2	3	5	7 1/2	15	--	50	17… 22	21-4CA20	27-2AK60				0.925
	2	3	5	7 1/2	15	--	50	20… 25	21-4DA20					0.925
	2	5	7 1/2	10	20	--	50	27… 32	21-4EA20					0.925

Screw fixing with 2 push-in lugs each per motor starter is possible with RH configured starters.
(see "Accessories for Direct-On-Line and Reversing Starters").

1) For push-in lugs and auxiliary switches see Accessories.

2) Selection depends on the motor full load amps. HP ratings for reference only.

3) Code for abbreviations:
RH = assembly kit for reversing duty and standard rail mounting adapter in size S0.
RS = assembly kit for reversing duty and busbar mounting.

4) With standard rail mounting or screw fixing, the 3RA29 13-2AA2 wiring kit and link module are required for size S00.

5) The RH/RS assembly kits also include 3RA29 11-1CA00 spacer for height compensation on AC contactors size S0 with spring-type terminals.

Illustrations are approximate

3RA22 reversing starters 24 V DC

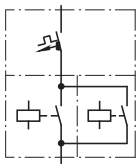

3RA22 10


3RA22 20


3RA22 10


3RA22 20

Reversing duty



Rated control supply voltage 24 V DC
With screw connections

- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted due to the modular system.
- With the contactor S0, an integrated NO contact is available for free use.

Combination Starter, UL508 Type F
All size S00 and S0 devices can be applied as Combination Starters with the addition of either of these line side connectors: 3RV29 28-1H, 3RV29 25-5EB or 3RV29 28-1K.

Size	UL Data: Single-phase HP ratings 115 V	230 V	Three-phase[2] HP ratings 200 V	230 V	460 V	575 V	SCCR at 480 V kA	FLA setting range inverse-time delayed overload release A	Consisting of the following single devices: Motor starter protector	+ 2 contactors	+ Link module + Assembly kit RH/RS[3]	Assembled starter: Screw terminals Order No.	Weight approx. kg
Selection depends on motor full load amps													
									3RV20	**3RT20**	**3RA**		
S00	--	--	--	--	--	--	65	0.14…0.2	11-0BA10	15-1BB42	1921-1DA00 '+	**3RA22 10-0B□15-2BB4**	0.934
	--	--	--	--	--	--	65	0.18…0.25	11-0CA10		2913-2AA1[4] '+	**3RA22 10-0C□15-2BB4**	0.934
	--	--	--	--	--	--	65	0.22…0.32	11-0DA10		2913-1DB1 (RS)	**3RA22 10-0D□15-1BB4**	0.934
	--	--	--	--	--	--	65	0.28…0.4	11-0EA10			**3RA22 10-0E□15-2BB4**	0.934
	--	--	--	--	--	--	65	0.35…0.5	11-0FA10			**3RA22 10-0F□15-1BB4**	0.934
	--	--	--	--	--	--	65	0.45…0.63	11-0GA10			**3RA22 10-0G□15-2BB4**	0.934
	--	--	--	--	--	--	65	0.55…0.8	11-0HA10			**3RA22 10-0H□15-2BB4**	0.934
	--	--	--	--	--	1/2	65	0.7… 1	11-0JA10			**3RA22 10-0J□15-2BB4**	0.934
	--	--	--	--	1/2	1/2	65	0.9… 1.25	11-0KA10			**3RA22 10-0K□15-2BB4**	0.934
	--	1/10	--	--	3/4	3/4	65	1.1… 1.6	11-1AA10			**3RA22 10-1A□15-2BB4**	0.934
	--	1/8	--	--	3/4	1	65	1.4… 2	11-1BA10			**3RA22 10-1B□15-2BB4**	0.934
	--	1/6	1/2	1/2	1	1 1/2	65	1.8… 2.5	11-1CA10			**3RA22 10-1C□15-2BB4**	0.934
	1/10	1/4	1/2	3/4	1 1/2	2	65	2.2… 3.2	11-1DA10			**3RA22 10-1D□15-2BB4**	0.934
	1/8	1/3	3/4	3/4	2	3	65	2.8… 4	11-1EA10			**3RA22 10-1E□15-2BB4**	0.934
	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA10			**3RA22 10-1F□15-2BB4**	0.934
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA10			**3RA22 10-1G□15-2BB4**	0.934
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA10	16-1BB42		**3RA22 10-1H□16-2BB4**	0.934
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA10			**3RA22 10-1J□16-2BB4**	0.934
	1/2	2	3	3	7 1/2	10	65	9… 12	11-1KA10	17-1BB42		**3RA22 10-1K□17-2BB4**	0.934
	1	2	3	5	10	--	65	11… 16	11-4AA10	18-1BB42		**3RA22 10-4A□18-2BB4**	0.934
S0	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA10	24-1BB40	2921-1BA00 '+	**3RA22 20-1F□24-0BB4**	1.811
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA10		2923-1BB1 (RH) '+	**3RA22 20-1G□24-0BB4**	1.811
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA10		2923-1DB1 (RS)	**3RA22 20-1H□24-0BB4**	1.811
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA10			**3RA22 20-1J□24-0BB4**	1.811
	1/2	2	3	3	7 1/2	10	65	9… 12.5	11-1KA10			**3RA22 20-1K□24-0BB4**	1.811
	1	2	3	5	10	--	65	11… 16	21-4AA10	26-1BB40		**3RA22 20-4A□26-0BB4**	1.811
	1 1/2	3	5	5	10	--	65	14… 20	21-4BA10			**3RA22 20-4B□26-0BB4**	1.811
	1 1/2	3	5	7 1/2	15	--	50	17… 22	21-4CA10	27-1BB40		**3RA22 20-4C□27-0BB4**	1.811
	2	3	5	7 1/2	15	--	50	20… 25	21-4DA10			**3RA22 20-4D□27-0BB4**	1.811
	2	5	7 1/2	10	20	--	50	27… 32	21-4EA10			**3RA22 20-4E□27-0BB4**	1.811

			Add. weight
Order No. supplement for mounting onto standard mounting rail or screw fixing			
• Without standard mounting rail adapter for size S00[4]	**1**	**A**	
• With 2 standard mounting rail adapters for size S0	**2**	**B**	
Screw fixing with 2 push-in lugs each per motor starter is possible			
Order No. supplement for mounting onto 60 mm busbar			
With 8US Fast Bus busbar adapter for size S00	**1**	**D**	0.486
for size S0	**2**	**D**	0.306

[1] For push-in lugs and auxiliary switches see Accessories.

[2] Selection depends on the motor full load amps. HP ratings for reference only.

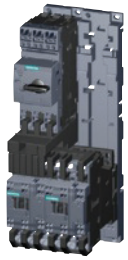
[3] Code for abbreviations:
RH = assembly kit for reversing duty with standard rail mounting adapter in size S0.
RS = assembly kit for reversing duty with 8US Fast Bus busbar mounting.

[4] With standard rail mounting or screw fixing, the 3RA29 13-2AA1 wiring kit and link module are required for size S00.

Illustrations are approximate

3RA22 reversing starters 24 V DC

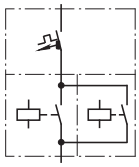

3RA22 10


3RA22 20


3RA22 10


3RA22 20

Reversing duty



Rated control supply voltage 24 V DC
With spring-type connection

- These starters can be assembled in the field without tools by simply snapping the components together. Follow the simple component selection system to form a starter.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted due to the modular system.
- With the contactor S0, an integrated NO contact is available for free use.

Combination Starter, UL508 Type F
All size S00 and S0 devices can be applied as Combination Starters with the addition of either of these line side connectors: 3RV29 28-1H, 3RV29 25-5EB or 3RV29 28-1K.

Size	UL Data							FLA setting range inverse-time delayed overload release	Consisting of the following single devices				Not available pre-assembled	Weight approx.
	Single-phase HP ratings		Three-phase[2] HP ratings				SCCR at 480 V		Motor starter protector	+ 2 contactors	Standard rail or screw mounting + Link module + Assembly kit (RH)[3]	8US Busbar mounting system + Link module + Assembly kit (RS)[3]	Spring-type terminals	
	115 V	230 V	200 V	230 V	460 V	575 V							Order No.	
							kA	A						kg
Selection depends on motor full load amps									**3RV20**	**3RT20**	**3RA**	**3RA**		
S00	--	--	--	--	--	--	65	0.14…0.2	11-0BA20	15-2BB42	2911-2AA00	2911-2AA00		0.641
	--	--	--	--	--	--	65	0.18…0.25	11-0CA20		+ 2913-2AA2[4]	+ 2913-1DB2[5]		0.641
	--	--	--	--	--	--	65	0.22…0.32	11-0DA20					0.641
	--	--	--	--	--	--	65	0.28…0.4	11-0EA20					0.641
	--	--	--	--	--	--	65	0.35…0.5	11-0FA20					0.641
	--	--	--	--	--	--	65	0.45…0.63	11-0GA20					0.641
	--	--	--	--	--	--	65	0.55…0.8	11-0HA20					0.641
	--	--	--	--	--	1/2	65	0.7… 1	11-0JA20					0.641
	--	--	--	--	1/2	1/2	65	0.9… 1.25	11-0KA20					0.641
	--	1/10	--	--	3/4	3/4	65	1.1… 1.6	11-1AA20					0.641
	--	1/8	--	--	3/4	1	65	1.4… 2	11-1BA20					0.641
	--	1/6	1/2	1/2	1	1 1/2	65	1.8… 2.5	11-1CA20					0.641
	1/10	1/4	1/2	3/4	1 1/2	2	65	2.2… 3.2	11-1DA20					0.641
	1/8	1/3	3/4	3/4	2	3	65	2.8… 4	11-1EA20					0.641
	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA20					0.641
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA20					0.641
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA20	16-2BB42				0.641
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA20					0.641
	1/2	2	3	3	7 1/2	10	65	9… 12	11-1KA20	17-2BB42				0.641
	1	2	3	5	10	--	65	11… 16	11-4AA20	18-2BB42				0.641
S0	1/6	1/2	1	1	3	3	65	3.5… 5	11-1FA20	24-2BB40	2921-2AA00	2921-2AA00		0.925
	1/4	1/2	1	1 1/2	3	5	65	4.5… 6.3	11-1GA20		+ 2923-1BB2[5]	+ 2923-1DB2[5]		0.925
	1/3	1	2	2	5	5	65	5.5… 8	11-1HA20					0.925
	1/2	1 1/2	2	3	5	7 1/2	65	7… 10	11-1JA20					0.925
	1/2	2	3	3	7 1/2	10	65	9… 12.5	11-1KA20					0.925
	1	2	3	5	10	--	65	11… 16	21-4AA20	26-2BB40				0.925
	1 1/2	3	5	5	10	--	65	14… 20	21-4BA20					0.925
	1 1/2	3	5	7 1/2	15	--	50	17… 22	21-4CA20	27-2BB40				0.925
	2	3	5	7 1/2	15	--	50	20… 25	21-4DA20					0.925
	2	5	7 1/2	10	20	--	50	27… 32	21-4EA20					0.925

Screw fixing with 2 push-in lugs each per motor starter is possible with RH configured starters.

1) For push-in lugs and auxiliary switches see Accessories.

2) Selection depends on the motor full load amps. HP ratings for reference only.

3) Code for abbreviations:
RH = assembly kit for reversing duty with standard rail mounting adapter in size S0.
RS = assembly kit for reversing duty with 8US Fast Bus busbar mounting.

4) With standard rail mounting or screw fixing, the 3RA29 13-2AA2 wiring kit and link module are required for size S00.

5) The RH/RS assembly kits also include 3RA29 11-1CA00 spacer for height compensation on AC contactors size S0 with spring-type terminals.

Illustrations are approximate

Overview

The accessories listed here are parts and add-ons for the 3RA2 direct-on-line and reversing starters as well as components for the customer assembly of motor starters.

Selection and ordering data

Accessories for motor starter protectors


3RV29 01-1E


3RV29 01-2E


3RV29 01-1A


3RV29 01-2A

Version	For motor starter protectors	Screw terminals	Weight approx.	Spring-type terminals	Weight approx.
	Size	Order No.	kg	Order No.	kg
Auxiliary switches for motor starter protectors[1]					
Transverse auxiliary switches for front mounting					
1 CO	S00/S0	**3RV29 01-1D**	0.014	**--**	
1 NO + 1 NC		**3RV29 01-1E**	0.016	**3RV29 01-2E**	0.016
Lateral auxiliary switches mountable on the left					
1 NO + 1 NC	S00/S0	**3RV29 01-1A**	0.036	**3RV29 01-2A**	0.035

1) One transverse auxiliary switch and one lateral auxiliary switch can be attached per motor starter protector. The lateral auxiliary switch with 2 NO + 2 NC is used without a transverse auxiliary switch.


3RV29 02-1A..


3RV29 02-2D..

Rated control supply voltage U_s AC 50 Hz	AC 60 Hz	AC 50/60 Hz 100 % ON period[1]	AC/DC 50/60 Hz, DC 5 s ON period[2]	For motor starter protectors	Screw terminals	Weight approx.	Spring-type terminals	Weight approx.
					Order No.		Order No.	
V	V	V	V	Size		kg		kg
Auxiliary releases for motor starter protectors[3]								
Undervoltage releases								
415	480	--	--	S00/S0	**3RV29 02-1AV1**	0.117	**--**	
Shunt releases								
--	--	20 ... 24	20 ... 70	S00/S0	**3RV29 02-1DB0**		**3RV29 02-2DB0**	
--	--	90 ... 110	70 ... 190	S00/S0	**3RV29 02-1DF0**	0.119	**3RV29 02-2DF0**	0.115

1) The voltage range is valid for 100 % (infinite) ON period. The response voltage lies at 0.9 of the lower limit of the voltage range.

2) The voltage range is valid for 5 s ON period at AC 50 Hz/60 Hz and DC. The response voltage lies at 0.85 of the lower limit of the voltage range.

3) One auxiliary release can be mounted on the right per motor starter protector (does not apply to 3RV21 motor starter protectors with overload relay function).

The complete range of accessories for the motor starter protectors can be found in Chapter 5 "Protection Equipment" --> "SIRIUS 3RV2 Motor Starter Protectors up to 40 A" --> "Accessories".

Accessories

Accessories for contactors

	For contactors Size	Version	Order No.	Weight approx. kg
Auxiliary switch blocks for snapping onto the front for contactors				
 3RH29 11-1BA..			**Screw terminals**	
		Cable entry from below		
	S00	1-pole		
		- 1 NO	**3RH29 11-1BA10**	0.020
		- 1 NC	**3RH29 11-1BA01**	0.020
 3RH29 11-1MA..	S00	2-pole		
		- 1 NO + 1 NC	**3RH29 11-1MA11**	0.050
		- 2 NO	**3RH29 11-1MA20**	0.050
Laterally mountable auxiliary switch blocks for contactors				
 3RH29 11-1DA..			**Screw terminals**	
	S00	2 NC	**3RH29 11-1DA02**	0.020
	S00	1 NO + 1 NC	**3RH29 11-1DA11**	0.040
	S00	2 NO	**3RH29 11-1DA20**	0.040
	S0	2 NC	**3RH29 21-1DA02**	0.050
	S0	1 NO + 1 NC	**3RH29 21-1DA11**	0.050
	S0	2 NO	**3RH29 21-1DA20**	0.050
 3RH29 11-2DA..			**Spring-type terminals**	
	S00	2 NC	**3RH29 11-2DA02**	0.050
	S00	1 NO + 1 NC	**3RH29 11-2DA11**	0.050
	S00	2 NO	**3RH29 11-2DA20**	0.050
	S0	2 NC	**3RH29 21-2DA02**	0.050
	S0	1 NO + 1 NC	**3RH29 21-2DA11**	0.050
	S0	2 NO	**3RH29 21-2DA20**	0.050
Connection modules for contactors with screw terminals				
 3RT19 26-4RD01			**Screw terminals**	
	Adapters for contactors Ambient temperature $T_{u\,max.}$ = 60 °C			
	S00	Rated operational current I_e at AC-3/400 V: 20 A	**3RT19 16-4RD01**	0.020
	S0	Rated operational current I_e at AC-3/400 V: 25 A	**3RT19 26-4RD01**	0.200
 3RT19 00-4RE01	**Plugs for contactors**			
	S00, S0	--	**3RT19 00-4RE01**	0.025

The complete range of accessories for the contactors can be found in Chapter 3 "Controls – Contactors and Contactor Assemblies" --> "Accessories and Spare Parts".

For contactors	Version	Rated control supply voltage U_s [1]	Order No.	Weight approx.
Type		V		kg
Surge suppressors without LED for contactors				
Size S00				
For plugging onto the front side of the contactors with and without auxiliary switch blocks				
3RT2.	**Varistors**	24 ... 48 AC, 24 ... 70 DC	**3RT29 16-1BB00**	0.010
		48 ... 127 AC, 70 ... 150 DC	**3RT29 16-1BC00**	0.010
3RT2.	**RC elements**	24 ... 48 AC, 24 ... 70 DC	**3RT29 16-1CB00**	0.010
		48 ... 127 AC, 70 ... 150 DC	**3RT29 16-1CC00**	0.010
3RT2.	**Noise suppression diodes**	12 ... 250 DC	**3RT29 16-1DG00**	0.010
3RT2.	**Diode assemblies** (diode and Zener diode) for DC operation and short break times	12 ... 250 DC	**3RT29 16-1EH00**	0.010
Size S0				
For plugging onto the front side of the contactors (prior to mounting of the auxiliary switch block)				
3RT20 2	**Varistors**	24 ... 48 AC, 24 ... 70 DC	**3RT29 26-1BB00**	0.010
		48 ... 127 AC, 70 ... 150 DC	**3RT29 26-1BC00**	0.010
3RT20 2	**RC elements**	24 ... 48 AC, 24 ... 70 DC	**3RT29 26-1CB00**	0.010
		48 ... 127 AC, 70 ... 150 DC	**3RT29 26-1CC00**	0.010
3RT20 2	**Diode assemblies** For DC operation and short break times	24 DC	**3RT29 26-1ER00**	0.010
		30 ... 250 DC	**3RT29 26-1ES00**	0.010


3RT29 16-1B.00

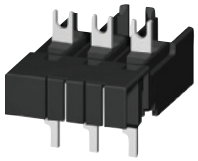
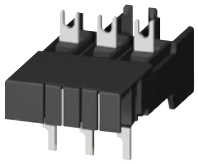
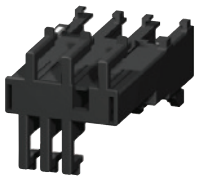
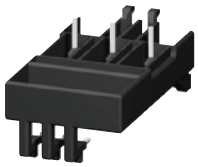
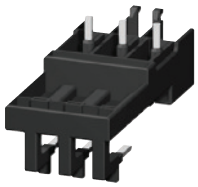

3RT29 26-1E.00

[1] Can be used for AC operation for 50/60 Hz. Please inquire about further voltages.

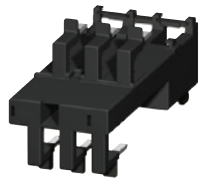
The complete range of accessories for the contactors can be found in Chapter 3 "Controls – Contactors and Contactor Assemblies" --> "Accessories and Spare Parts".

Accessories

Accessories for the customer assembly of motor starters

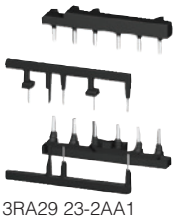
For motor starter protector Size	For contactors Size	Actuating voltage of contactor	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
Link modules from motor starter protector to contactor						
 3RA29 21-1AA00	Electrical and mechanical link between motor starter protector and contactor		**Screw terminals**			
	Single-unit packaging					
S00/S0	S00	AC and DC	**3RA19 21-1DA00**	1	1 unit	0.028
S00/S0	S0	AC	**3RA29 21-1AA00**	1	1 unit	0.001
S00/S0	S0	DC	**3RA29 21-1BA00**	1	1 unit	0.001
 3RA29 21-1BA00	**Multi-unit packaging**					
S00/S0	S00	AC and DC	**3RA19 21-1D**	1	10 units	0.021
S00/S0	S0	AC	**3RA29 21-1A**	1	10 units	0.001
S00/S0	S0	DC	**3RA29 21-1B**	1	10 units	0.001
 3RA29 11-2AA00	Electrical and mechanical link between motor starter protector and contactor		**Spring-type terminals**			
	Single-unit packaging					
S00	S00	AC and DC	**3RA29 11-2AA00**	1	1 unit	0.040
S0	S0	AC[1] and DC	**3RA29 21-2AA00**	1	1 unit	0.077
	Multi-unit packaging					
S00	S00	AC and DC	**3RA29 11-2A**	1	10 units	0.400
S0	S0	AC[1] and DC	**3RA29 21-2A**	1	10 units	0.770
Hybrid link modules from motor starter protector to contactor						
 3RA29 11-2FA00	For mechanical and electrical connection between motor starter protector with screw terminals and contactor with spring-type terminals					
	Single-unit packaging					
S00	S00	AC and DC	**3RA29 11-2FA00**	1	1 unit	0.029
S0	S0	AC[1] and DC	**3RA29 21-2FA00**	1	1 unit	0.056
 3RA29 21-2FA00	**Multi-unit packaging**					
S00	S00	AC and DC	**3RA29 11-2F**	1	10 units	0.290
S0	S0	AC[1] and DC	**3RA29 21-2F**	1	10 units	0.560

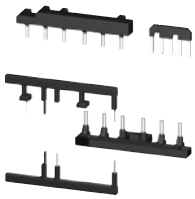
[1] A spacer for height compensation on AC contactors with spring-type terminals, size S0 is optionally available, see page 6/28.

For motor starter protector Size	For soft starters Size	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
Link modules from motor starter protector to soft starter					
 3RA29 21-2GA00	Electrical and mechanical link between motor starter protector and soft starter	**Screw terminals**			
	Single-unit packaging				
S00/S0	S00/S0	**3RA29 21-1BA00**	1	1 unit	0.001
	Multi-unit packaging				
S00/S0	S00/S0	**3RA29 21-1B**	1	10 units	0.001
	Electrical and mechanical link between motor starter protector and soft starter	**Spring-type terminals**			
	Single-unit packaging				
S00	S00	**3RA29 11-2GA00**	1	1 unit	0.038
S0	S0	**3RA29 21-2GA00**	1	1 unit	0.072
	Multi-unit packaging				
S00	S00	**3RA29 11-2G**	1	10 units	0.380
S0		**3RA29 21-2G**	1	10 units	0.720

* You can order this quantity or a multiple thereof.
Illustrations are approximate

For contactors Size	Version	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
Wiring kits for contactors					
		Screw terminals			
	Reversing duty				
S00	Electrical and mechanical connection for reversing contactors, optionally with integrated electrical and mechanical interlock	**3RA29 13-2AA1**	1	1 unit	0.001
S0		**3RA29 23-2AA1**	1	1 unit	0.001
	Wye-delta starting				
S00	Electrical and mechanical link for three contactors of same size	**3RA29 13-2BB1**	1	1 unit	0.001
S0		**3RA29 23-2BB1**	1	1 unit	0.001
		Spring-type terminals			
	Reversing duty				
S00	Electrical and mechanical connection for reversing contactors, optionally with integrated electrical and mechanical interlock	**3RA29 13-2AA2**	1	1 unit	0.001
S0		**3RA29 23-2AA2**	1	1 unit	0.001
	Wye-delta starting				
S00	Electrical and mechanical link for three contactors of same size	**3RA29 13-2BB2**	1	1 unit	0.001
S0		**3RA29 23-2BB2**	1	1 unit	0.001
Safety main current connectors for 2 contactors					
	Switches 2 contactors in series	**Screw terminals**			
S00		**3RA29 16-1A**	1	1 unit	0.001
S0		**3RA29 26-1A**	1	1 unit	0.001


3RA29 23-2AA1


3RA29 23-2BB1


3RA29 23-2AA2


3RA29 16-1A

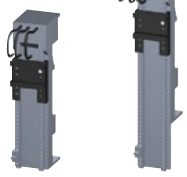
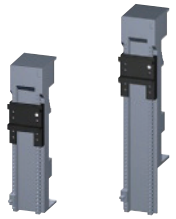
6

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Accessories

	For motor starter protector	For contactors	Version	Order No.	PU (UNIT, SET, M)	PS*	Weight approx.
	Size	Size					kg
Standard mounting rail adapters							
 3RA29 22-1AA00			For mechanical fixing of motor starter protector and contactor; for snapping onto standard mounting rail or for screw fixing				
	S00, S0	S00, S0	**Single-unit packaging**	**3RA29 22-1AA00**	1	1 unit	0.001
	S00, S0	S00, S0	**Multi-unit packaging**	**3RA29 22-1A**	1	5 units	0.001
Side modules for standard mounting rail adapters							
 3RA19 02-1B	S00/S0	S00/S0	For standard mounting rail adapters 10 mm wide, 96 mm long, for widening standard mounting rail adapters when using lateral auxiliary switches, 2 units required	**3RA19 02-1B**	1	10 units	0.009
RH assembly kits for reversing duty and standard rail mounting in size S0							
 3RA29 23-1BB1			**RH assembly kits for screw terminals**	**Screw terminals**			
	S0	S0	Comprising: • Wiring kits • 2 standard mounting rail adapters • 2 connecting wedges Link modules must be ordered separately.	**3RA29 23-1BB1**	1	1 unit	0.001
			RH assembly kits for spring-type terminals	**Spring-type terminals**			
	S0	S0	Comprising: • Wiring kits • 2 standard mounting rail adapters • 2 connecting wedges • Spacers Link modules must be ordered separately.	**3RA29 23-1BB2**	1	1 unit	0.001
Push-in lugs for screw fixing							
 3RV29 28-0B	S00, S0	--	For screwing the motor starter protector onto mounting plates; for each motor starter protector, 2 units are required.	**3RV29 28-0B**	1	10 units	0.100

* You can order this quantity or a multiple thereof.
Illustrations are approximate

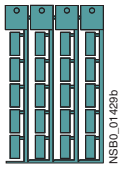
For motor starter protector Size	For contactors Size	Version	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
Busbar adapters for 60 mm systems						
 8US12 51-5DS10 8US12 51-5DT11		For flat copper profiles according to DIN 46433 Width: 12 mm and 30 mm Thickness: 5 mm and 10 mm also for T and double-T special profiles				
		For motor starter protectors and contactors with screw terminals	**Screw terminals**			
S00	S00	Rated current 16 A, 45 mm wide, 200 mm long	**8US12 51-5DS10**	1	1 unit	0.183
S0	S0	Rated current 32 A, 45 mm wide, 260 mm long	**8US12 51-5NT10**	1	1 unit	0.183
		For motor starter protectors and contactors with spring-type terminals	**Spring-type terminals**			
S00	S00	Rated current 16 A, 45 mm wide, 260 mm long	**8US12 51-5DT11**	1	1 unit	0.183
S0	S0	Rated current 32 A, 45 mm wide, 260 mm long	**8US12 51-5NT11**	1	1 unit	0.183
Device holders for lateral mounting onto busbar adapters for 60 mm system						
 8US12 50-5AS10 8US12 50-5AT10						
S00, S0	S00, S0	Up to 25 A, 45 mm wide, 200 mm long	**8US12 50-5AS10**	1	1 unit	0.183
S0	S0	Up to 40 A, 45 mm wide, 260 mm long	**8US12 50-5AT10**	1	1 unit	0.183
Side modules for widening busbar adapters						
--	--	Including connecting wedges, for widening busbar adapters or device holders, 9 mm wide, 200 mm long	**8US19 98-2BJ10**	1	1 unit	0.023
Spacers for fixing the motor starter onto the busbar adapter						
--	S00, S0	(1 pack = 100 units)	**8US19 98-1BA10**	1	1 pack	0.183
Vibration and shock kits for high vibration and shock loads						
--	S00, S0		**8US19 98-1CA10**	1	1 unit	0.183
RS assembly kits for reversing duty for 60 mm busbar systems						
 3RA29 23-1DB1 only Busbar adapter pictured		**RS assembly kits for screw terminals**	**Screw terminals**			
S00, S0 S0 S00	S00 S0 S0	Comprising: • Wiring kits • Busbar adapters • Device holders • 2 connecting wedges • Side modules Link modules must be ordered separately.	**3RA29 13-1DB1** **3RA29 23-1DB1** **3RA29 23-1EB1**	1 1 1	1 unit 1 unit 1 unit	0.001 0.001 0.001
 3RA29 23-1DB2 only Busbar adapter pictured		**RS assembly kits for spring-type terminals**	**Spring-type terminals**			
S00 S0	S00 S0	Comprising: • Wiring kits • Busbar adapters • Device holders • 2 connecting wedges • Spacers • Side modules Link modules must be ordered separately.	**3RA29 13-1DB2** **3RA29 23-1DB2**	1 1	1 unit 1 unit	0.001 0.001

6

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Accessories

	For motor starter protector Size	For contactors Size	Version	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
Connecting wedges							
 8US19 98-1AA00	For mechanical linking of busbar adapters and device holders or of standard mounting rail adapters (2 units per combination required)			**8US19 98-1AA00**	1	100 units	0.100
Spacers							
 3RA29 11-1CA00	For height compensation on AC contactors size S0 with spring-type terminals			**Spring-type terminals**			
	S0	S0	**Single-unit packaging**	**3RA29 11-1CA00**	1	1 unit	0.001
	S0	S0	**Multi-unit packaging**	**3RA29 11-1C**	1	5 units	0.001

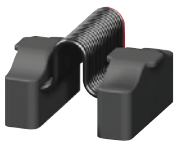
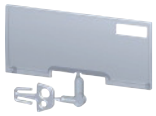
	Version	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
Tools for opening spring-type terminals by hand					
 3RA29 08-1A	**Screwdrivers** for all SIRIUS devices with spring-type terminals Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated	**Spring-type terminals** **3RA29 08-1A**	1	1 unit	0.045
Blank labels					
 3RT19 00-1SB20	**Unit labeling plates**[1] for SIRIUS devices 20 mm x 7 mm, pastel turquoise	**3RT19 00-1SB20**	100	340 units	0.200

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systems, Inc. www.murrplastik.com .

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Function modules for mounting onto SIRIUS 3RT2 contactors for connection to the control system[1) 2)]

Version	Screw terminals	Weight approx.	Spring-type terminals	Weight approx.
	Order No.	kg	Order No.	kg
Function modules for direct-on-line starting				
 3RA27 11-1AA00  3RA27 11-2AA00	**IO-Link connection** include: • 1 module connector (short) for assembling an IO-Link group • 2 interface covers	**3RA27 11-1AA00**	0.080	**3RA2711-2AA00**	0.075
	AS-Interface connection	**3RA27 12-1AA00**	0.075	**3RA27 12-2AA00**	0.075
Function modules for reversing starting				
 3RA27 11-1BA00  3RA27 11-2BA00	**IO-Link connection** include: • 1 basic module • 1 coupling module • 2 module connectors (short) for assembling an IO-Link group • 2 Interface covers	**3RA27 11-1BA00**	0.155	**3RA27 11-2BA00**	0.145
	AS-Interface connection include: • 1 basic module • 1 coupling module • 1 module connector (short) • 1 interface cover	**3RA27 12-1BA00**	0.150	**3RA27 12-2BA00**	0.145
Function modules for wye-delta starting				
 3RA27 12-1CA00  3RA27 11-2CA00	**IO-Link connection** include: • 1 basic module • 2 coupling modules • 3 module connectors (short) for assembling an IO-Link group • 2 Interface covers	**3RA27 11-1CA00**	0.190	**3RA27 11-2CA00**	0.185
	AS-Interface connection include: • 1 basic module • 2 coupling modules • 2 module connectors (short) • 1 interface cover	**3RA27 12-1CA00**	0.185	**3RA27 12-2CA00**	0.185

Version	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
Accessories for function modules				
 3RA27 11-0EE0.	**Module connectors**			
	• 10-pole, 8 cm, for additional auxiliary voltage supply inside an IO-Link group	**3RA27 11-0EE04**	1	1 unit	0.001
	• 14-pole - 8 cm, for size jump S00-S0 + 1 space - 21 cm, for size jump S00-S0, for diverse space combinations	**3RA27 11-0EE02** **3RA27 11-0EE03**	1 1	1 unit 1 unit	0.001 0.001
 3RA29 10-0	**Sealable covers** for wye-delta function modules	**3RA29 10-0**	1	5 units	0.002

1) For description see Chapter 3 "Controls – Contactors and Contactor Assemblies".

2) The function modules for connection to the control system can be used only in combination with a contactor with a communications interface. These contactors are not included as standard in the preassembled 3RA2 motor starters. The corresponding contactors can be found in Chapter 3 "Controls – Contactors and Contactor Assemblies", pages 3/13 and 3/15.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Accessories

	Version	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
Operator panels for communication through IO-Link					
 3RA69 35-0A	**Operator panels (set)** • 1 x operator panel • 1 x 3RA69 36-0A enabling module • 1 x blanking cover • 1 x fixing terminal For size S00/S0	**3RA69 35-0A**	1	1 unit	0.052
	Connection cables Length 2 m, 10- to 14-pole, for connection from the operator panel to the coupling module, for size S00/S0	**3RA27 11-0EE11**	1	1 unit	0.001
	Enabling modules (spare part) for size S00/S0	**3RA69 36-0A**	1	1 unit	0.002
	Interface covers for size S00/S0	**3RA69 33-0B**	1	5 units	0.012

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Overview

Types of infeed for 3RA2 motor starters

On the whole, four different power infeed possibilities are available:

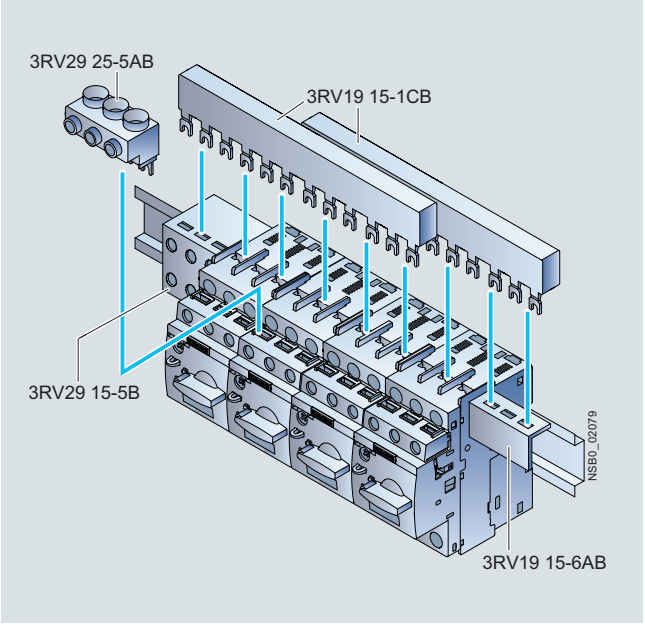
- Parallel wiring
- Use of insulated three-phase busbars (combination with SIRIUS motor starter protectors and contactors possible)
- 8US busbar adapters for 60 mm systems
- SIRIUS 3RV29 infeed systems

Insulated three-phase busbar systems

Three-phase busbar systems provide an easy, time-saving and clearly arranged means of feeding 3RA2 motor starters with screw terminals. Different versions are available for sizes S00 and S0 and can also be used for the various different types of motor starter protectors.

The busbars are suitable for between 2 and 5 starters. However, any kind of extension is possible by clamping the tags of an additional busbar (rotated by 180°) underneath the terminals of the respective last motor starter protector.

A combination of starters of different sizes is possible with sizes S00 and S0. Connecting pieces are available for this purpose. The motor starter protectors are supplied by appropriate starter terminals.



Three-phase insulated busbar system size S00/S0

The three-phase busbar systems are finger-safe. They are designed for any short-circuit stress which can occur at the output side of connected motor starter protectors.

The three-phase busbar systems can also be used to construct "Type E Starters" of size S0 or S2 according to UL/CSA. Special type E terminals must be used for this purpose however.

For selection and ordering data see Chapter 5 "Protection Equipment" --> "SIRIUS 3RV2 Motor Starter Protectors up to 40 A" --> "Accessories" --> "Busbar Accessories".

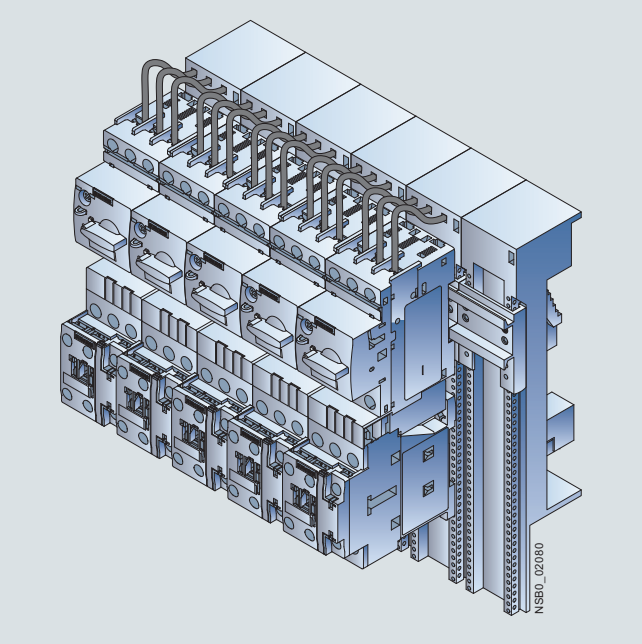
8US busbar adapters for 60 mm systems

The motor starters are mounted directly with the aid of busbar adapters on busbar systems with 60 mm center-to-center clearance in order to save space and to reduce infeed times and costs.

The busbar adapters for busbar systems with 60 mm center-to-center clearance are suitable for copper busbars with a width of 12 to 30 mm. The busbars can be 5 mm or 10 mm thick.

The starters are snapped onto the adapter and connected on the line side. This prepared unit is then plugged directly onto the busbar system, and is connected both mechanically and electrically at the same time.

For "Selection and ordering data" see page 6/27.



Motor starters with busbar adapters snapped onto busbars

SIRIUS 3RV29 infeed systems

The 3RV29 infeed system is a convenient means of energy supply and distribution for a group of several motor starter protectors or complete motor starters with a screw or spring-type connection up to size S0.

The system is based on a basic module complete with a lateral incoming unit (three-phase busbar with infeed) which has two slots.

Expansion modules are available for extending the system (three-phase busbars for system expansion).

For 3RV29 infeed system see Chapter 5 "Protection Equipment" --> "SIRIUS 3RV2 Motor Starter Protectors up to 40 A" --> "Accessories" --> "3RV29 Infeed System".

General data

Overview

3RA6 compact starters and infeed system for 3RA6

3RA62 reversing starter

Integrated functionality

The SIRIUS 3RA6 compact starters are a generation of innovative motor starters with the integrated functionality of a motor starter protector, contactor and solid-state overload relay. In addition, various functions of optional mountable accessories (e. g. auxiliary switches, surge suppressors) come standard with the SIRIUS compact starter.

Application

The SIRIUS compact starters can be used wherever standard induction motors up to 32 A (approx. 20 HP/460 V) are directly started.

The compact starters are not suitable for the protection of single-phase AC or DC loads.

The Compact Starter carries IEC, UL, and CSA approvals.

Low equipment variance

Thanks to wide setting ranges for the rated current and wide voltage ranges, the equipment variance is greatly reduced compared to conventional motor starters.

Very high operational reliability

Thanks to the high short-circuit breaking capacity and weld-free capability when the end of service life is reached, the SIRIUS compact starter achieves a very high level of operational reliability that would otherwise have only been possible with considerable additional overhead. This sets it apart from devices with similar functionality.

Safe disconnection

The auxiliary switches of the 3RA6 compact starters are designed as mirror contacts. It is thus possible to use the devices for safe disconnection, e. g. emergency-stops, up to Category 2 (EN 954-1) and together with other redundancy switching devices up to Category 3 or 4.

Communications integration with AS-Interface

To enable communications integration through AS-Interface there is an AS-i add-on module available in several versions which can be mounted on the SIRIUS compact starter in place of its control circuit terminals.

The design of the AS-i add-on module permits a group of up to 62 starters to be connected to the control system using just 4 cables. This reduces wiring work considerably compared to the conventional wiring method.

Communications integration using IO-Link

Up to 4 IO-Link compact starters (reversing and direct-on-line starters) can be connected together and conveniently linked to the IO-Link master through a standardized IO-Link connection. The SIRIUS 4SI solid-state module is used for example as an IO-Link master for connection to the SIMATIC ET 200S distributed I/O system.

The IO-Link connection enables a high density of information to be passed from device to PLC.

For details on the communications integration using IO-Link see Chapter 2 "Industrial Communication" --> "IO-Link".

The diagnostics data of the process collected by the 3RA6 compact starter, e. g. short-circuit, end of service life, limit position etc., are not only indicated on the compact starter itself, but also transmitted to the higher-level control system through IO-Link.

An optional operator panel, which can be installed in the control cabinet door, allows for easy control of the 3RA6 IO-Link compact starter from the control cabinet door.

Permanent wiring / easy replacement

Using the SIRIUS infeed system for 3RA6 (see page 6/52) it is possible to carry out the wiring in advance without a compact starter needing to be connected.

A compact starter can be very easily replaced simply by pulling it out of the infeed system without disconnecting the wiring.

Regardless of whether the infeed system is mounted to a flat surface, or on a DIN rail, there is no need to disconnect any wiring (on account of the removable main and control circuit terminals) in order to replace a compact starter.

Consistent solution from the infeed to the motor starter

The SIRIUS infeed system for 3RA6 (with integrated PE bar) is offered as a user-friendly possibility of supplying up to 100 A to attached starters with a maximum wire cross section of 2/0 AWG while connecting the motor cable directly without additional intermediate terminals.

Screw and spring-type connections

The SIRIUS compact starters and the infeed system for 3RA6 are available with screw and spring-type connections.

	Screw terminals
	Spring-type terminals
	These terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

System configurator for engineering

A free system configurator is available to further reduce the amount of engineering work for selecting the required compact starters and matching infeed.

Types of infeed for the 3RA6 compact starters

In total, four different infeed possibilities are available:

- Conventional wiring
- Use of three-phase busbars (combination with SIRIUS motor starter protectors and SIRIUS contactors possible)
- 8US Fast Bus busbar adapters
- SIRIUS infeed system for 3RA6 (see page 6/52)

To comply with the clearance and creepage distances demanded according to UL 508 there are the following infeed possibilities:

Type of infeed	Feeder terminal (according to UL 508, type E)	Type
Conventional wiring	Terminal block for "Self-Protected Combination Motor Controller (Type E)"	**3RV19 28-1H**
Three-phase busbars	Three-phase infeed terminal for constructing "Type E Starters", UL 508	**3RV19 25-5EB**
Infeed systems for 3RA6	Infeed on left, 50/70 mm^2, screw terminal with 3 sockets, outgoing terminal with screw/spring-type connections, including PE bar	**3RA68 13-8AB** (screw terminals), **3RA68 13-8AC** (spring-type terminals)

SIRIUS 3RA6 compact starters

The SIRIUS 3RA6 compact starters are universal motor starters according to IEC/EN 60947-6-2. As control and protective switching devices (CPS) they can connect, convey and disconnect the thermal, dynamic and electrical loads from short-circuit currents up to I_q = 30 kA, i.e. they are essentially weld-free. They combine the functions of a motor starter protectors, a contactor and a solid-state overload relay in a single enclosure and can be used wherever standard induction motors up to 32 A (up to approx. 20 HP at 480 V AC) are started directly. Available versions are the direct-on-line starters with 45 mm width and the reversing starters with 90 mm width.

The reversing starter version comes with not only an internal electrical interlock but also with a mechanical interlock to prevent simultaneous actuation of both directions of rotation.

3RA6 compact starters are supplied in 5 current setting ranges. The 3RA61 and 3RA62 have 3 control voltage ranges (AC/DC), the 3RA64 and 3RA65 have one control voltage range (DC):

Current setting range	At 460 V AC for induction motors Standard output P	Rated control supply voltage for 3RA61, 3RA62 compact starters	Rated control supply voltage for 3RA64, 3RA65 compact starters for IO-Link
A	HP	V AC/DC	V DC
0.1 ... 0.4	--	24	24
0.32 ... 1.25	1/2	42 ... 70	
1 ... 4	2	110 ... 240	
3 ... 12	7 1/2		
8 ... 32	20		

Note:

The 3RA1 motor starters can be used as motor starters > 32 A up to 100 A.

The SENTRON 3VL circuit breakers and the SIRIUS 3RT contactors can be used for motor starters >100 A.

Operating conditions

The SIRIUS 3RA6 compact starters are suitable for use in nearly all climates. They are intended for use in enclosed rooms in which no severe operating conditions (such as dust, caustic vapors, hazardous gases) prevail. Suitable covers must be provided for installation in dusty and damp locations.

The SIRIUS compact starters are generally designed to degree of protection IP20. The permissible ambient temperature during operation is -20 to +60 °C.

The maximum short-circuit current based on UL testing is 30 kA up to 12 A and 15 kA for the 8 ... 32 A versions at 480 V.

Note:

More technical specifications can be found in the system manual at

www.siemens.com/compactstarter

Overload tripping times

The overload tripping time can be set on the device to less than 10 s (CLASS 10) and less than 20 s (CLASS 20 for heavy starting). As the breaker mechanism still remains closed after an overload, resetting is possible by either local manual reset or autoreset after 3 minutes cooling time.

With autoreset there is no need to open the control cabinet.

Diagnostics options

The compact starter provides the following diagnostics options on site:

- With LEDs
  - Connection to the control voltage
  - Position of the main contacts
- With mechanical indication
  - Tripping due to overload
  - Tripping due to short-circuit
  - Tripping due to malfunction (end of service life reached because of worn switching contacts or a worn switching mechanism or faults in the control electronics)

These states can also be evaluated in the higher-level control system:

- With conventional wiring using the integrated auxiliary and signaling switches of the compact starter
- With AS-Interface or IO-Link in even greater detail using the respective communication interface

Four complement variants for 3RA6 compact starters

- For standard mounting rail or screw mounting:
  basic version including 1 pair of main circuit terminals and 1 pair of control circuit terminals
- For standard mounting rail or screw mounting when using the AS-i add-on module:
  comes without control circuit terminals because the AS-i add-on module is attached in lieu of them
- For use with the infeed system for 3RA6:
  without main circuit terminals because they are supplied with the infeed system and the expansion modules
- For use with the infeed system for 3RA6 and AS-i add-on module:
  without main or control circuit terminals as they are not needed
- The control circuit terminals are always required by the compact starters for IO-Link; the main circuit terminals depend on the use of the infeed system.

Additional components of the 3RA6

The two control circuit terminals on the 3RA61/3RA62 allow access to signalling contacts for overload (1 CO) and short-circuit / malfunction (1 NO). Furthermore, the 3RA61 has two auxiliary contacts (1 NO + 1 NC) for indicating the position of the main contacts, while the 3RA62 has one auxiliary contact (1 NO) per direction of rotation per main contact.

General data

Order No. scheme

Digit of the Order No.	1st - 4th	5th	6th	7th		8th	9th	10th	11th	12th
	□□□□	□	□	□	–	□	□	□	□	□
SIRIUS 3RA6 compact starters	**3 R A 6**									
Version (direct-on-line starter = 1, reversing starter = 2, direct-on-line starter for IO-Link = 4, reversing starter for IO-Link = 5, infeed system = 8, accessories = 9)		□								
Details of accessories			□	□						
Connection method (0 = without terminals, 1 = screw terminals, 2 = spring-type terminals)						□				
Setting range							□			
Rated control supply voltage								□	□	
With or without main and/or control circuit terminals										□
Example	**3 R A 6**	**1**	**2**	**0**	**–**	**0**	**A**	**B**	**3**	**0**

Note:

The Order No. scheme is presented here merely for informational purposes and for better understanding of the logic behind the order numbers.

For your orders, please use the order numbers listed in the catalog in the selection and ordering data.

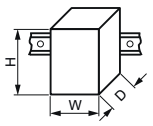
Benefits

The SIRIUS 3RA6 compact starters offer a number of advantages:

- Compact design saves space in the control cabinet
- Reduced planning and assembly work and far less wiring thanks to a single complete unit with one order number
- Decreased variance thanks to 3 wide voltage ranges and 5 wide setting ranges for the rated current means stock levels are kept to a minimum
- High plant availability due to integrated functionalities such as prevention of main contact welding and safe disconnection at end of service life
- Greater productivity provided by automatic device reset in case of overload and differentiated detection of overload and short-circuit
- Easy checking of the wiring and testing of the motor direction prior to start-up thanks to the optional control kit device
- Rapid replacement of devices thanks to removable terminals with spring-type and screw connections in the main and control circuit
- Efficient power distribution via the related SIRIUS infeed system for 3RA6
- Direct connection of the motor starter cable to the SIRIUS infeed system for 3RA6 thanks to integrated PE bar
- Connecting and looping through multiple infeed systems up to a cross-section of 2/0 AWG
- When using the infeed system for 3RA6, possibility of directly connecting the motor wiring without intermediate terminals
- Integration in Totally Integrated Automation thanks to the optional connection to AS-Interface or IO-Link
- Offers up to 80% energy savings when compared to conventional starters

The SIRIUS 3RA6 compact starters create the basis for high-availability and future-proof machine concepts.

More information

Type			3RA61	3RA62	3RA64	3RA65
Size			S0			
Number of poles			3			
General technical specifications						
Device standard			IEC/EN 60947-6-2			
Mounting dimensions (WxHxD)						
• Screw terminals		mm	45 x 170 x 165	90 x 170 x 165	45 x 170 x 165	90 x 170 x 165
• Spring-type terminals		mm	45 x 191 x 165	90 x 191 x 165	45 x 191 x 165	90 x 191 x 165
Weight		kg	1.4	2.3 -2.4	1.3	2.3
Permissible mounting positions			No restrictions, preferably vertical or horizontal installation			
Max. rated current I_e	0.1 ... 0.4 A	A	0.4			
in the respective setting range	0.32 ... 1.25 A	A	1.25			
	1 ... 4 A	A	4			
	3 ... 12 A	A	12			
	8 ... 32 A	A	32			
Permissible ambient temperature						
• During operation	Acc. to IEC/EN 60721-3-3	°C	-20 ... +60, with derating up to +70			
• For installation in SIRIUS infeed system for 3RA6		°C	-20 ... +40			
• During storage	IEC/EN 60732-3-1	°C	-55 ... +80			
• During transport	IEC/EN 60721-3-2	°C	-55 ... +80			
Permissible rated current of the compact starter, when several compact starters are mounted side-by-side on a vertical standard mounting rail or in the 3RA6 infeed system						
• For a control cabinet inside temperature of	+40 °C	%	100			
• For a control cabinet inside temperature of	+60 °C	%	80			
Relative air humidity		%	10 ... 90			
Installation altitude		m	Up to 2000 above sea level without restriction			
Rated frequency		Hz	50/60			
Rated insulation voltage U_i (pollution degree 3)		V	690			
Rated impulse withstand voltage U_{imp}		kV	6			
Trip class (CLASS)	Acc. to IEC 60947-4-1, EN 60947-4-1		10/20			
Rated short-circuit current I_q at AC 50/60 Hz 480 V	Acc. to IEC 60947-4-1, EN 60947-4-1	kA	30 (up to 12 A units) 15 (8 ... 32 A unit)			
Types of coordination	Acc. to IEC 60947-6-2, EN 60947-6-2		Continuous			
Power loss $P_{v\ max}$ of all main current paths	0.4 A	mW	10			
Dependent on the rated current I_e	1.25 A	mW	100			
(upper setting range)	4 A	W	1			
	12 A	W	1.8			
	32 A	W	5.4			
Max. switching frequency	AC-41	1/h	750			
	AC-43	1/h	250			
	AC-44	1/h	15			
Drive losses						
Active power	At 24 V					
	• 0.1 ... 12 A	W	2.7			
	• 8 ... 32 A	W	2.95			
	At 42 ... 70 V					
	• 0.1 ... 12 A	W	2.5			
	• 8 ... 32 A	W	3.0			
	At 110 ... 240 V					
	• 0.1 ... 12 A	W	3.4			
	• 8 ... 32 A	W	3.8			
Overload function						
Ratio of lower to upper current mark			1:4			
Shock resistance (sine-wave pulse)			a = 60 m/s² = 6 g with 10 ms; for every 3 shocks in all axes			
Vibratory load			f = 4 ... 5.8 Hz; d = 15 mm; f = 5.8 ... 500 Hz; a = 20 m/s²; 10 cycles			
Degree of protection	Acc. to IEC 60947-1		IP20			
Touch protection	Acc. to IEC/EN 61140		Finger-safe			
Isolating features of the compact starter	Acc. to IEC/EN 60947-3		Yes			
Main and EMERGENCY-STOP switch characteristics of the compact starter and accessories	Acc. to IEC/EN 60204		Yes			

General data

Type Size Number of poles			3RA61 S0 3	3RA62	3RA64	3RA65
General technical specifications (continued)						
Protective separation	Acc. to IEC 60947-2					
Control circuit to auxiliary circuit						
• Horizontal standard mounting rail		V	Up to 400			
• Other mounting position		V	Up to 250			
Auxiliary circuit to auxiliary circuit						
• Horizontal standard mounting rail		V	Up to 400			
• Other mounting position		V	Up to 250			
Main circuit to auxiliary circuit						
• Any mounting position		V	Up to 400			
EMC interference immunity	Acc. to IEC/EN 60947-1		Corresponds to degree of severity 3			
Conductor-related interference	BURST acc. to IEC/EN 61000-4-4					
• In the main circuit		kV	4		4	
• In the auxiliary circuit		kV	3		2	
Conductor-related interference	SURGE acc. to IEC/EN 61000-4-5					
• In the main circuit						
- Conductor - Ground		kV	4		2	
- Conductor - Conductor		kV	2		1	
• In the auxiliary circuit						
- Conductor - Ground		kV	2		0.5[1]	
- Conductor - Conductor		kV	1		0.5[1]	
Auxiliary switches						
• Integrated						
- Position of the main contacts			1 NO + 1 NC	2 NO	1 NO + 1 NC	2 NO
- Overload/short-circuit signal			1 CO/1 NO			
• Expandable						
- Position of the main contacts			2 NO, 2 NC, 1 NO + 1 NC			
Surge suppressors			Integrated (Varistor)			
Pollution degree			3			
Depth from standard mounting rail		mm	160			
Electromagnetic operating mechanism						
Control voltage		V	24 AC/DC		24 DC	
		V	42 ... 70 AC/DC		--	
		V	110 ... 240 AC/DC		--	
Frequency	At AC	Hz	50/60 (±5 %)			
Primary operating range			0.7 ... 1.25 U_s		0.85 ... 1.2 U_s	
No-load switching frequency		1/h	3600			
Make-time		ms	max. 70		Max. 70 + IO-Link communication	
Break-time		ms	max. 120		Max. 120 + IO-Link communication	

[1] To maintain maximum interference immunity in a harsh electromagnetic environment, additional overvoltage protection should be provided in the control supply current circuit. A suitable choice is for example the Dehn Blitzductor BVT AD 24 V, Art. No. 918 402 or an equivalent protective element.
Manufacturer: DEHN+SÖHNE GmbH+Co. KG, Hans-Dehn-Straße. 1, Postfach 1640, D-92306 Neumarkt

Type		3RA61 20-.☐B3., 3RA62 50-.☐B3. ☐ = A, B, C or D Rated operational current ≤ 12 A				3RA61 20-.EB3., 3RA62 50-.EB3. Rated operational current 32 A			
Rated control supply voltage	**V**	**24 AC**		**24 DC**		**24 AC**		**24 DC**	
Inrush peak current	A	0.59		0.47		0.59		0.47	
Hold current	A	0.13		0.12		0.17		0.14	
Closed	W	2.8		2.9		3.5		3.1	
Operating times, typical									
• On	ms	<160		<140		<160		<140	
• Off	ms	<35		<35		<30		<30	
Type		3RA61 20-.☐E3., 3RA62 50-.☐E3. ☐ = A, B, C or D Rated operational current ≤ 12 A				3RA61 20-.EE3., 3RA62 50-.EE3. Rated operational current 32 A			
Rated control supply voltage	**V**	**42 AC**	**70 AC**	**42 DC**	**70 DC**	**42 AC**	**70 AC**	**42 DC**	**70 DC**
Inrush peak current	A	0.44	0.50	0.32	0.53	0.47	0.63	0.34	0.56
Hold current	A	0.08	0.08	0.06	0.04	0.09	0.08	0.09	0.07
Closed	W	2.6	3.1	2.2	2.2	2.7	3.2	3.6	4.2
Operating times, typical									
• On	ms	<160	<140	<160	<140	<150	<140	<150	<140
• Off	ms	<35	<50	<35	<40	<30	<40	<30	<40
Type		3RA61 20-.☐P3., 3RA62 50-.☐P3. ☐ = A, B, C or D Rated operational current ≤ 12 A				3RA61 20-.EP3., 3RA62 50-.EP3. Rated operational current 32 A			
Rated control supply voltage	**V**	**110 AC**	**240 AC**	**110 DC**	**240 DC**	**110 AC**	**240 AC**	**110 DC**	**240 DC**
Inrush peak current	A	0.24	0.40	0.17	0.29	0.24	0.40	0.17	0.29
Hold current	A	0.06	0.08	0.03	0.02	0.06	0.07	0.04	0.03
Closed	W	3.8	6	3.1	5.1	3.7	5.2	3.4	5.8
Operating times, typical									
• On	ms	<160	<140	<150	<140	<160	<140	<150	<140
• Off	ms	<50	<80	<50	<70	<40	<60	<40	<60
Type		3RA64 00-.☐B4., 3RA65 00-.☐B4. ☐ = A, B, C or D Rated operational current ≤ 12A				3RA64 00-.EB4., 3RA65 00-.EB4. Rated operational current 32 A			
Rated control supply voltage	**V**	**24 DC**				**24 DC**			
Inrush peak current	A	0.39				0.53			
Hold current	A	0.13				0.15			
Closed	W	2.9				3.4			
Operating times, typical[1)]									
• On	ms	<140				<140			
• Off	ms	<35				<30			

General data

Type Size Number of poles			3RA61 S0 3	3RA62	3RA64	3RA65
Electromagnetic operating mechanism (continued)						
Switching capacity at 480 V		kA	30 (up to 12 A) 15 (8 ... 32 A)			
Switching capacity at 600 V		kA	10 (up to 12 A) 5 (8 ... 32 A)			
Line protection	At 10 kA At 50 kA	AWG AWG	14 12			
Shock resistance • Breaker mechanism OFF • Breaker mechanism ON		 *g* *g*	 25 15			
Normal switching duty						
Making capacity			12 x I_n			
Breaking capacity			10 x I_n			
Switching capacity dependent on rated current	Up to 12 A Up to 32 A	HP HP	7 1/2 20			
Endurance in operating cycles • Electrical endurance	At I_e = 0.9 x I_n and 400 V		3 ... 10 000 000	2 x 3 ... 10 000 000	3 000 000	2 x 1 500 000
Control circuit						
Rated operational voltage • External auxiliary switch block • Internal auxiliary switch • Short-circuit signaling switch • Overload signaling switch		 V V V V	 400/690 400/690 400 400			
Switching capacity						
• External auxiliary switch block	**AC-15**					
	• At U_e = 230 V	A	6			
	• At U_e = 400 V	A	3			
	• At U_e = 289/500 V	A	2			
	• At U_e = 400/690 V	A	1			
	DC-13					
	• At U_e = 24 V	A	6			
	• At U_e = 60 V	A	0.9			
	• At U_e = 125 V	A	0.55			
	• At U_e = 250 V	A	0.27			
• Internal auxiliary switch	**AC-15**					
	• At U_e = 230 V	A	6			
	• At U_e = 400 V	A	3			
	• At U_e = 289/500 V	A	2			
	• At U_e = 400/690 V	A	1			
	DC-13					
	• At U_e = 24 V	A	10			
	• At U_e = 60 V	A	2			
	• At U_e = 125 V	A	1			
	• At U_e = 250 V	A	0.27			
	• At U_e = 480 V	A	0.1			
• Signaling switch	**AC-15**					
	• At U_e = 230 V	A	3			
	• At U_e = 400 V	A	1			
	DC-13					
	• At U_e = 24 V	A	2			
	• At U_e = 250 V	A	0.11			

Type			**3RA61**	**3RA62**	**3RA64**	**3RA65**
Size			**S0**			
Number of poles			**3**			
External auxiliary switch block, internal auxiliary switch						
Endurance in operating cycles						
• Mechanical endurance			10 000 000		3 000 000	
• Electrical endurance	**AC-15, 230 V**					
	• At 6 A		200 000			
	• At 3 A		500 000			
	• At 1 A		2 000 000			
	• At 0.3 A		10 000 000			
	DC-13, 24 V					
	• At 6 A		300 00			
	• At 3 A		100 000			
	• At 0.5 A		2 000 000			
	• At 0.2 A		10 000 000			
	DC-13, 110 V					
	• At 1 A		40 000			
	• At 0.55 A		100 000			
	• At 0.3 A		300 000			
	• At 0.1 A		2 000 000			
	• At 0.04 A		10 000 000			
	DC-13, 220 V					
	• At 0.3 A		110 000			
	• At 0.1 A		650 000			
	• At 0.05 A		2 000 000			
	• At 0.018 A		10 000 000			
Contact stability	At 17 V and 5 mA	Operating cycles	1 incorrect switching operation per 100 000 000			
Short-circuit protection						
• Short-circuit current $I_K \leq 1.1$ kA	Fuse links operational class gG - NEOZED Type 5SE - DIAZED Type 5SB - LV HRC Type 3NA	A	10			
• Short-circuit current $I_K < 400$ A	Miniature circuit breaker up to 230 V with C characteristic	A	10			
Signaling switches						
Endurance in operating cycles						
• Mechanical endurance			20000			
• Electrical endurance AC-15	At 230 V and 3 A		6050			
Contact stability	At 17 V and 5 mA	Operating cycles	1 incorrect switching operation per 100 000 000			
Short-circuit protection						
• Short-circuit current $I_K \leq 1.1$ kA	Fuse links operational class gG - NEOZED Type 5SE - DIAZED Type 5SB - LV HRC Type 3NA	A	6			
• Short-circuit current $I_K < 400$ A	Miniature circuit breaker up to 230 V with C characteristic	A	6			
Overload (short-circuit current $I_K \leq 1.1$ kA)	Fuse links operational class gG - NEOZED Type 5SE - DIAZED Type 5SB - LV HRC Type 3NA	A	4			

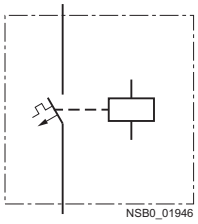
3RA61, 3RA62 compact starters
3RA61 direct-on-line starters

Selection and ordering data

3RA61 20-1CB32

3RA61 20-2EB32

Direct-on-line start



Width 45 mm
One set of 3RA69 40-0A adapters is required for screw fixing.

Standard induction motor 4-pole at 400 V AC[1] Standard output *P*	Setting range for solid-state overload release	Order No.	Order No.
HP	A		
For use with the infeed system for 3RA6 and with the AS-i add-on module or as a replacement device, without main and control circuit terminals			
--	0.1 ... 0.4	**3RA61 20-0A□30**	**--**
1/2	0.32 ... 1.25	**3RA61 20-0B□30**	**--**
2	1 ... 4	**3RA61 20-0C□30**	**--**
7 1/2	3 ... 12	**3RA61 20-0D□30**	**--**
20	8 ... 32	**3RA61 20-0E□30**	**--**
		Screw terminals	**Spring-type terminals**
For standard mounting rail or screw mounting, including 1 pair of main circuit terminals and 1 pair of control circuit terminals			
--	0.1 ... 0.4	**3RA61 20-1A□32**	**3RA61 20-2A□32**
1/2	0.32 ... 1.25	**3RA61 20-1B□32**	**3RA61 20-2B□32**
2	1 ... 4	**3RA61 20-1C□32**	**3RA61 20-2C□32**
7 1/2	3 ... 12	**3RA61 20-1D□32**	**3RA61 20-2D□32**
20	8 ... 32	**3RA61 20-1E□32**	**3RA61 20-2E□32**
For use in the infeed system for 3RA6, without main circuit terminals, with 1 pair of control circuit terminals			
--	0.1 ... 0.4	**3RA61 20-1A□33**	**3RA61 20-2A□33**
1/2	0.32 ... 1.25	**3RA61 20-1B□33**	**3RA61 20-2B□33**
2	1 ... 4	**3RA61 20-1C□33**	**3RA61 20-2C□33**
7 1/2	3 ... 12	**3RA61 20-1D□33**	**3RA61 20-2D□33**
20	8 ... 32	**3RA61 20-1E□33**	**3RA61 20-2E□33**
For standard mounting rail or screw mounting when using the AS-i add-on module with 1 pair of main circuit terminals, without control circuit terminals			
--	0.1 ... 0.4	**3RA61 20-1A□34**	**3RA61 20-2A□34**
1/2	0.32 ... 1.25	**3RA61 20-1B□34**	**3RA61 20-2B□34**
2	1 ... 4	**3RA61 20-1C□34**	**3RA61 20-2C□34**
7 1/2	3 ... 12	**3RA61 20-1D□34**	**3RA61 20-2D□34**
20	8 ... 32	**3RA61 20-1E□34**	**3RA61 20-2E□34**
Order No. supplements for rated control supply voltage			
• 24 V AC/DC (for combining with AS-i add-on module)		**B**	**B**
• 42 ... 70 V AC/DC		**E**	**E**
• 110 ... 240 V AC/DC		**P**	**P**

[1] Selection depends on the motor full load amps. Horse Power ratings provided for reference only.

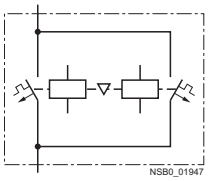
Illustrations are approximate

Selection and ordering data

3RA62 50-1CP32

3RA62 50-2DP32

Reversing duty



Width 90 mm

One set of 3RA69 40-0A adapters is required for screw fixing.

Standard induction motor 4-pole at 400 V AC[1] Standard output *P*	Setting range for solid-state overload release	Order No.	Order No.
HP	A		
For use with the infeed system for 3RA6 and with the AS-i add-on module or as a replacement device, without main and control circuit terminals			
--	0.1 ... 0.4	**3RA62 50-0A□30**	**--**
1/2	0.32 ... 1.25	**3RA62 50-0B□30**	**--**
2	1 ... 4	**3RA62 50-0C□30**	**--**
7 1/2	3 ... 12	**3RA62 50-0D□30**	**--**
20	8 ... 32	**3RA62 50-0E□30**	**--**
		Screw terminals	**Spring-type terminals**
For standard mounting rail or screw mounting, including 1 pair of main circuit terminals and 1 pair of control circuit terminals			
--	0.1 ... 0.4	**3RA62 50-1A□32**	**3RA62 50-2A□32**
1/2	0.32 ... 1.25	**3RA62 50-1B□32**	**3RA62 50-2B□32**
2	1 ... 4	**3RA62 50-1C□32**	**3RA62 50-2C□32**
7 1/2	3 ... 12	**3RA62 50-1D□32**	**3RA62 50-2D□32**
20	8 ... 32	**3RA62 50-1E□32**	**3RA62 50-2E□32**
For use in the infeed system for 3RA6, without main circuit terminals, with 1 pair of control circuit terminals			
--	0.1 ... 0.4	**3RA62 50-1A□33**	**3RA62 50-2A□33**
1/2	0.32 ... 1.25	**3RA62 50-1B□33**	**3RA62 50-2B□33**
2	1 ... 4	**3RA62 50-1C□33**	**3RA62 50-2C□33**
7 1/2	3 ... 12	**3RA62 50-1D□33**	**3RA62 50-2D□33**
20	8 ... 32	**3RA62 50-1E□33**	**3RA62 50-2E□33**
For standard mounting rail or screw mounting when using the AS-i add-on module with 1 pair of main circuit terminals, without control circuit terminals			
--	0.1 ... 0.4	**3RA62 50-1A□34**	**3RA62 50-2A□34**
1/2	0.32 ... 1.25	**3RA62 50-1B□34**	**3RA62 50-2B□34**
2	1 ... 4	**3RA62 50-1C□34**	**3RA62 50-2C□34**
7 1/2	3 ... 12	**3RA62 50-1D□34**	**3RA62 50-2D□34**
20	8 ... 32	**3RA62 50-1E□34**	**3RA62 50-2E□34**
Order No. supplements for rated control supply voltage			
• 24 V AC/DC (for combining with AS-i add-on module)		**B**	**B**
• 42 ... 70 V AC/DC		**E**	**E**
• 110 ... 240 V AC/DC		**P**	**P**

[1] Selection depends on the motor full load amps. Horse Power ratings provided for reference only.

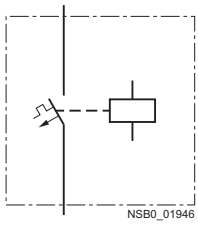
Illustrations are approximate

3RA64, 3RA65 compact starters for IO-Link
3RA64 direct-on-line starters

Selection and ordering data

3RA64 with 3RA69 11-1A auxiliary switch block

Direct-on-line start



NSB0_01946

Rated control supply voltage 24 V DC

Width 45 mm

One set of 3RA69 40-0A adapters is required for screw fixing.

Standard induction motor 4-pole at 400 V AC[1] Standard output *P*	Setting range for solid-state overload release	**Screw terminals**	**Spring-type terminals**
		Order No.	Order No.
HP	A		
For standard mounting rail or screw mounting, including 1 pair of main circuit terminals and 1 pair of control circuit terminals			
--	0.1 ... 0.4	**3RA64 00-1AB42**	**3RA64 00-2AB42**
1/2	0.32 ... 1.25	**3RA64 00-1BB42**	**3RA64 00-2BB42**
2	1 ... 4	**3RA64 00-1CB42**	**3RA64 00-2CB42**
7 1/2	3 ... 12	**3RA64 00-1DB42**	**3RA64 00-2DB42**
20	8 ... 32	**3RA64 00-1EB42**	**3RA64 00-2EB42**
For use in the infeed system for 3RA6, without main circuit terminals, with 1 pair of control circuit terminals			
--	0.1 ... 0.4	**3RA64 00-1AB43**	**3RA64 00-2AB43**
1/2	0.32 ... 1.25	**3RA64 00-1BB43**	**3RA64 00-2BB43**
2	1 ... 4	**3RA64 00-1CB43**	**3RA64 00-2CB43**
7 1/2	3 ... 12	**3RA64 00-1DB43**	**3RA64 00-2DB43**
20	8 ... 32	**3RA64 00-1EB43**	**3RA64 00-2EB43**

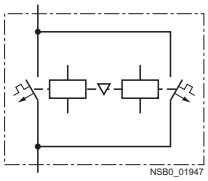
[1] Selection depends on the motor full load amps. Horse Power ratings provided for reference only.

Illustrations are approximate

Selection and ordering data

3RA65.with 3RA69 11-1A auxiliary switch block

Reversing duty



Rated control supply voltage 24 V DC

Width 90 mm

One set of 3RA69 40-0A adapters is required for screw fixing.

Standard induction motor 4-pole at 400 V AC[1] Standard output *P*	Setting range for solid-state overload release		Screw terminals DT	Spring-type terminals
			Order No.	Order No.
HP	A			
For standard mounting rail or screw mounting, including 1 pair of main circuit terminals and 1 pair of control circuit terminals				
--	0.1 ... 0.4		**3RA65 00-1AB42**	**3RA65 00-2AB42**
1/2	0.32 ... 1.25		**3RA65 00-1BB42**	**3RA65 00-2BB42**
2	1 ... 4		**3RA65 00-1CB42**	**3RA65 00-2CB42**
7 1/2	3 ... 12		**3RA65 00-1DB42**	**3RA65 00-2DB42**
20	8 ... 32		**3RA65 00-1EB42**	**3RA65 00-2EB42**
For use in the infeed system for 3RA6, without main circuit terminals, with 1 pair of control circuit terminals				
--	0.1 ... 0.4		**3RA65 00-1AB43**	**3RA65 00-2AB43**
1/2	0.32 ... 1.25		**3RA65 00-1BB43**	**3RA65 00-2BB43**
2	1 ... 4		**3RA65 00-1CB43**	**3RA65 00-2CB43**
7 1/2	3 ... 12		**3RA65 00-1DB43**	**3RA65 00-2DB43**
20	8 ... 32		**3RA65 00-1EB43**	**3RA65 00-2EB43**

[1] Selection depends on the motor full load amps. Horse power ratings provided for reference only.

Accessories

Overview

Accessories for SIRIUS 3RA6 compact starters

The following accessories are available for the 3RA6 compact starters:

- AS-i add-on module: see AS-Interface Add-On Modules for 3RA6, page 6/50
- External auxiliary switch blocks: Snap-on auxiliary switch as versions 2 NO, 2 NC and 1 NO +1 NC with screw or spring-type connections; the contacts of the auxiliary switch block open and close jointly with the main contacts of the compact starter. The NC contacts are designed as mirror contacts.
- Control kit: aid for manually closing the main contacts in order to evaluate the wiring and motor direction under conditions of short-circuit protection
- Adapter for screw mounting the compact starter, including push-in lugs
- Main circuit terminals: Available in screw and spring-type terminals
- Main circuit terminals for mixed connection method:
  With the main circuit terminal for the mixed connection method it is also possible in the main circuit to change over from the screw connection method on the incoming side to the spring-type connection method on the outgoing side.
  This enables for example the side-by-side mounting of several compact starters and their cost-effective connection using the three-phase busbars on the infeed side. The motors are then directly connected by the quick and reliably contacting spring-type connection method.

Accessories for UL applications

The terminal block for "Self-Protected Combination Motor Controller", type E is available for complying with the clearance and creepage distances according to UL 508.

Accessories for infeed using three-phase busbar systems

The three-phase busbars can be used as an easy, time-saving and clearly arranged means of feeding SIRIUS 3RA6 compact starters with screw connection. Motor starter protectors size S00 and S0 can also be integrated.

The busbars are suitable for between 2 and 5 devices. However, any kind of extension up to a maximum summation current of 63 A is possible by clamping the terminals of an additional busbar (rotated by 180°) underneath the terminals of the respective last motor circuit protector.

A connecting piece is required for the combination with motor starter protector size S00. S00 and S0 motor starter protectors of the 3RV2 series do not require the additional connecting piece. The motor starter protectors are supplied by appropriate feeder terminals. Special feeder terminals are required for constructing "Type E Starters" according to UL/CSA.

The three-phase busbar systems are finger-safe but empty connection terminals must be fitted with covers. They are designed for any short-circuit stress which can occur at the output side of connected SIRIUS 3RA6 compact starters or motor starter protectors.

8US Fast Bus busbar adapters for 60 mm systems

The compact starters are mounted directly with the aid of busbar adapters on the Fast Bus busbar systems with 60 mm center-to-center clearance in order to save space and to reduce infeed times and costs. These starters are suitable for copper busbars with a width from 12 to 30 mm. The busbars can be 5 mm or 10 mm thick.

The 8US Fast Bus busbar system can be loaded with a maximum summation current of 630 A.

The "reversing starter" version requires a device holder along side the busbar adapter for lateral mounting.

The compact starters are snapped onto the adapter and connected on the line side. This prepared unit is then plugged directly onto the busbar system, and is thus connected both mechanically and electrically at the same time.

For more accessories such as incoming and outgoing terminals, flat copper profiles etc., see the Controls 2010 Catalog, Section 5 "8US Busbar Systems".

Accessories for operation with closed control cabinet doors

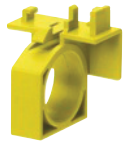
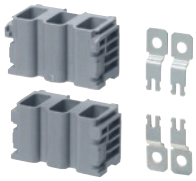
Door-coupling rotary operating mechanisms for standard and emergency-stop applications are available for operating the compact starter with closed control cabinet doors.

Accessories for SIRIUS 3RA6 compact starters in IO-Link version

The following accessories are available specifically for the 3RA64, 3RA65 compact starters:

- The 4SI SIRIUS solid-state module as IO-Link master allows for the simple and economical connection of SIRIUS controls with IO-Link (e.g up to four groups of 4 compact starters) to the multifunctional SIMATIC ET 200S distributed I/O system.
- Additional connection cables for side-by-side mounting of up to 4 compact starters
- Operator panel for local control and diagnostics of up to 4 compact starters coupled to each other

Selection and ordering data

Version	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
Accessories for 3RA6 compact starters				
 3RA69 50-0A **Control kits** For mechanical actuation of the compact starter	**3RA69 50-0A**	1	1 unit	0.004
 3RA69 40-0A **Adapters for screw mounting the compact starter** (set including push-in lugs) Direct-on-line starters require 1 set, reversing starters 2 sets.	**3RA69 40-0A**	1	1 unit	0.152
	Screw terminals			
 3RA69 11-1A **Auxiliary switch blocks for compact starters**				
• 2 NO	**3RA69 11-1A**	1	1 unit	0.018
• 2 NC	**3RA69 12-1A**	1	1 unit	0.018
• 1 NO +1 NC	**3RA69 13-1A**	1	1 unit	0.018
 3RA69 20-1A **Main circuit terminals** (line and load side)	**3RA69 20-1A**	1	1 unit	0.038
 3RA69 20-1B **Control circuit terminals**				
• For 3RA61	**3RA69 20-1B**	1	1 unit	0.042
• For 3RA62	**3RA69 20-1C**	1	1 unit	0.042
	Spring-type terminals			
 3RA69 11-2A **Auxiliary switch blocks for compact starters**				
• 2 NO	**3RA69 11-2A**	1	1 unit	0.018
• 2 NC	**3RA69 12-2A**	1	1 unit	0.018
• 1 NO +1 NC	**3RA69 13-2A**	1	1 unit	0.018
 3RA69 20-2A **Main circuit terminals** (line and load side)	**3RA69 20-2A**	1	1 unit	0.049
 3RA69 20-2B **Control circuit terminals**				
• For 3RA61	**3RA69 20-2B**	1	1 unit	0.036
• For 3RA62	**3RA69 20-2C**	1	1 unit	0.036

6

* You can order this quantity or a multiple thereof.
Illustrations are approximate

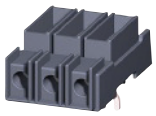
Accessories

Version	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
Accessories for 3RA6 compact starters (continued)				
 3RA69 20-3A **Main circuit terminals for mixed connection method** One set comprises: • 1 joint block on the line side for the screw connection method • 1 joint block on the motor side for the spring-type connection method	**3RA69 20-3A**	1	1 unit	0.044

Version	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
Accessories specifically for 3RA64, 3RA65 compact starters with IO-Link				
 3RA69 31-0A **Additional connection cables (flat) for side-by-side mounting of up to 4 compact starters**				
• 10-pole				
- 8 mm[1]	**3RA69 32-0A**	1	5 units	0.007
- 200 mm[1]	**3RA69 33-0B**	1	5 units	0.012
• 14-pole				
- 8 mm[2]	**3RA69 31-0A**	1	5 units	0.007
- 200 mm	**3RA69 33-0C**	1	5 units	0.014
 3RA69 35-0A **Operator panels** (incl. enabling block, blanking cover and assembly bracket)	**3RA69 35-0A**	1	1 unit	0.052
Enabling block	**3RA69 36-0A**	1	1 unit	0.002
Blanking covers	**3RA69 36-0B**	1	5 units	0.001
Connection cable (round) for connecting the operator panel 10-pole, 2000 mm	**3RA69 33-0A**	1	1 unit	0.114
 3RK1 005-0LB00-0AA0 **SIRIUS 4SI solid-state modules** IO-Link master for connection of up to 4 SIRIUS controls (max. 16 in groups of 4) with IO-Link (3-wire connection) to SIMATIC ET 200S, width 15 mm, supports firmware update (STEP 7 V5.4 SP5 and higher) Can be used with the following terminal modules: • TM-E15S26-A1 (screw terminals) • TM-E15C26-A1 (spring-type terminals) • TM-E15N26-A1 (Fast Connect)	**3RK1 005-0LB00-0AA0**	1	1 unit	0.057

[1] 10-pole connection cables are required for EMERGENCY-STOP group concepts.

[2] Is included in the scope of supply of the SIRIUS 3RA6 compact starter in IO-Link version.

Version	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
Terminal blocks and phase barriers for "Self-Protected Combination Motor Controllers (Type E)" according to UL 508				
 3RV29 28-1H *Note:* *UL 508 demands 1-inch clearance and 2-inch creepage distance on the line side for "Combination Motor Controller Type E". The following terminal blocks or phase barriers must be used in 3RV20 motor starter protectors.* The terminal blocks or phase barriers cannot be used in combination with the 3RV19 .5 three-phase busbars. For construction with three-phase busbars, see "Busbar accessories".				
Terminal blocks type E S00, S0 For extended clearance and creepage distances (1 and 2 inch)	**3RV29 28-1H**	1	1 unit	0.065

* You can order this quantity or a multiple thereof.
Illustrations are approximate

	Number of compact starters and motor starter protectors that can be connected without lateral accessories	Modular spacing	Rated current I_n at 690 V	For motor starter protector	Order No.	PU (UNIT, SET, M)	PS*	Weight approx.
		mm	A	Size				kg
Three-phase busbars for infeed with 3RA6								
 3RV19 15-1AB	For feeding several compact starters and/or motor starter protectors with screw terminals, mounted side by side on standard mounting rails, insulated, with touch protection.							
 3RV19 15-1BB	2	45	63	S0[1]	**3RV19 15-1AB**	1	1 unit	0.044
	3	45	63	S0[1]	**3RV19 15-1BB**	1	1 unit	0.071
 3RV19 15-1CB	4	45	63	S0[1]	**3RV19 15-1CB**	1	1 unit	0.099
	5	45	63	S0[1]	**3RV19 15-1DB**	1	1 unit	0.124
 3RV19 15-1DB								

[1] Not suitable for 3RV11/3RV21 motor starter protectors for motor protection with overload relay function and for 3RV17/3RV27 and 3RV18/3RV28 motor starter protectors according to UL 489 / CSA C22.2 No.5-02.
The joint clamping of motor starter protectors size S00 and size S0 is not possible due to the different modular spacings and the different height of the terminals. The 3RV19 15-5DB connecting piece is available for connecting the compact starters to motor starter protectors size S00.

	Version	Modular spacing	For motor starter protector	Order No.	PU (UNIT, SET, M)	PS*	Weight approx.
		mm	Size				kg
Connecting pieces for three-phase busbars							
 3RV19 15-5DB	For connecting compact starters (left) and motor starter protectors size S00 (right)	45	S00	**3RV19 15-5DB**	1	1 unit	0.042
Covers for connection terminals of the three-phase busbars							
 3RV19 15-6AB	Touch protection for empty positions	--	S00, S0	**3RV19 15-6AB**	1	10 units	0.003

	Conductor cross-section: Solid or stranded	Conductor cross-section: Finely stranded with end sleeve	Conductor cross-section: AWG cables, solid or stranded	Tightening torque	For compact starters and motor starter protectors	Order No.	Weight approx.
	mm²	mm²	AWG	Nm	Size		kg
Three-phase feeder terminals							
 3RV29 25-5AB	**Connection from top**						
	2.5 ... 16	2.5 ... 16	10 ... 4	3 ... 4	S00, S0	**3RV29 25-5AB**	0.043
	Connection from below[1]						
 3RV29 15-5B	2.5 ... 16	2.5 ... 16	10 ... 4	Input: 4, Output: 2 ... 2.5	S00, S0	**3RV29 15-5B**	0.093
Three-phase feeder terminals for constructing "Type E Starters" for three-phase busbars							
 3RV29 25-5EB	**Connection from top**						
	2.5 ... 16	2.5 ... 16	10 ... 4	3 ... 4	S00, S0	**3RV29 25-5EB**	0.044

[1] This terminal is connected in place of a switch, please take the space requirement into account.

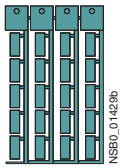
* You can order this quantity or a multiple thereof.
Illustrations are approximate

Accessories

	Version	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
8US Fast Bus busbar adapters for 60 mm systems					
 8US12 11-1NS10	For flat copper profiles according to DIN 46433 Width: 12 ... 30 mm Thickness: 4 ... 5 mm or 10 mm	**8US12 11-1NS10**	1	1 unit	0.337
Device holders for lateral mounting along side the Fast Bus busbar adapter for 60 mm systems					
 8US12 50-1AA10	Required in addition to the busbar adapter for mounting a reversing starter	**8US12 50-1AA10**	1	1 unit	0.239

	Version	Color of handle	Version of extension shaft mm	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
Door-coupling rotary operating mechanisms for operating the compact starter with closed control cabinet doors							
 3RV29 26-0B	The door-coupling rotary operating mechanisms consist of a knob, a coupling driver and an extension shaft of 130/330 mm in length (6 mm x 6 mm). The door-coupling rotary operating mechanisms are designed to degree of protection IP65. The door interlocking prevents accidental opening of the control cabinet door in the ON position of the motor starter protector. The OFF position can be locked with up to 3 padlocks.						
	Door-coupling rotary operating mechanisms	Black	130	**3RV29 26-0B**	1	1 unit	0.111
	EMERGENCY-STOP door-coupling rotary operating mechanisms	Red/ Yellow	130	**3RV29 26-0C**	1	1 unit	0.110

* You can order this quantity or a multiple thereof.
Illustrations are approximate

	Version	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
Tools for opening spring-type terminals by hand					
 3RA29 08-1A	**Screwdrivers** for all SIRIUS devices with spring-type terminals Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated	**Spring-type terminals**  **3RA29 08-1A**	1	1 unit	0.045
Blank labels					
 3RT19 00-1SB20	**Unit labeling plates**[1] for SIRIUS devices 20 mm x 7 mm, pastel turquoise	**3RT19 00-1SB20**	100	340 units	0.200

1) PC labeling system for individual inscription of unit labeling plates available from: Murrplastik Systems, Inc. www.murrplastik.com .

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Add-on modules for AS-Interface

Overview

Various AS-i add-on modules are available for communication of the 3RA6 compact starter with the control system using AS-Interface:

- Standard version
- With two local inputs
- With two free external inputs
- With one free external input and one free external output
- With two free external outputs
- For local control

The AS-i add-on modules can be combined only in connection with compact starters with a rated control supply voltage of 24 V AC/DC.

AS-i add-on module for communications controlling

With this new module it is also possible for the connected compact starter to be operated directly using simple switches, i.e. without recourse to AS-i Communication, if required.

"Automatic" mode

NC contacts can be connected to the inputs Y2 and Y4 through the local terminals on the AS-i add-on module. If the "+" connections are connected simultaneously to both local inputs, the AS-i add-on module will be in "Automatic" mode, i.e. it will communicate with the control system through AS-Interface.

Local control

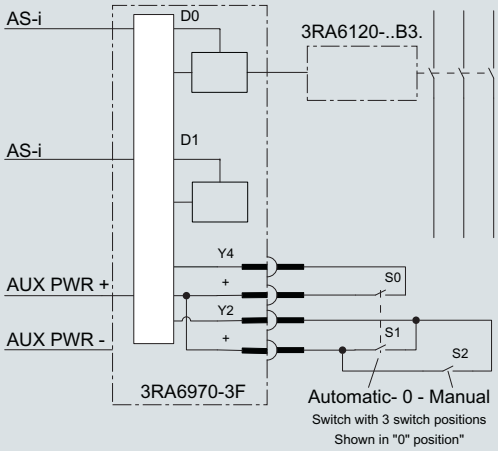
Opening the two inputs Y2 and Y4 will result in the direct disconnection of the compact starter. Operation through AS-i Communication is ended and the compact starter can now be switched on and off directly using NO contacts (one NO contact per direction of rotation on the reversing starter).

"LED AUX Power" must light up green, the 24 V DC supply must be connected and the AS-i control supply voltage must no longer be applied.

Resetting to "Automatic" mode

Simultaneous application of a "1" signal at the local inputs. The availability bit DI 0 is switched to a "1" signal.

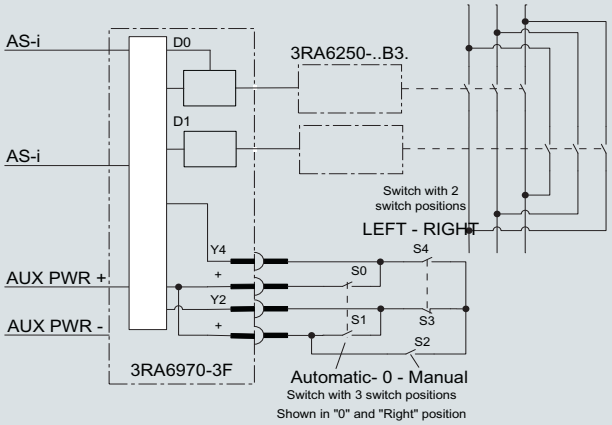
If AS-i Communication is reset, the motor is first switched off and then on again when requested by the control system.



Switch with 3 switch positions			
Switch	Automatic	0	Manual
S0	Closed	Open	Open
S1	Closed	Open	Open
S2	Open	Open	Closed

NSB0_02096

Circuit diagram example for operating a 3RA61 20 direct-on-line starter using an AS-i add-on module for on-site controller



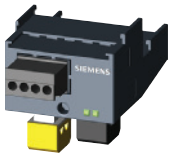
Switch with 3 switch positions			
Switch	Automatic	0	Manual
S0	Closed	Open	Open
S1	Closed	Open	Open
S2	Open	Open	Closed

Switch with 2 switch positions		
Switch	Left	Right
S3	Open	Closed
S4	Closed	Open

NSB0_02097

Circuit diagram example for operating a 3RA62 50 reversing starter using an AS-i add-on module for on-site controller

Selection and ordering data

	Version	Order No.	PU (UNIT, SET, M)	PS*	Weight approx. kg
AS-i add-on modules					
 3RA69 70-3A	**Standard version** For communication of the compact starter with the control system using AS-Interface	**3RA69 70-3A**	1	1 unit	0.045
	With two local inputs For safe disconnection through local safety relays, e.g. cable-operated switches	**3RA69 70-3B**	1	1 unit	0.045
 3RA69 70-3B to -3F	**With two free external inputs** Replaces the digital standard inputs "Motor On" and "Group warning"	**3RA69 70-3C**	1	1 unit	0.045
	With one free external input and one free external output Replaces the digital standard input "Group warning"	**3RA69 70-3D**	1	1 unit	0.045
	With two free external outputs Only for direct-on-line starters, replaces the digital standard output "Motor left"	**3RA69 70-3E**	1	1 unit	0.045
	For local control Control of the compact starter optionally using AS-Interface or local switches	**3RA69 70-3F**	1	1 unit	0.045
Accessories for AS-i add-on modules					
 3RK19 04-2AB01	**Addressing units** • For active AS-Interface modules, intelligent sensors and actuators • According to AS-Interface Version 2.1 • Including expanded addressing mode • Scope of supply - 1 addressing unit - 1 operating manual (German, English, French, Spanish, Italian) - 1 addressing cable (1.5 m, with jack plug)	**3RK19 04-2AB01**	1	1 unit	0.540

6

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Infeed systems for 3RA6

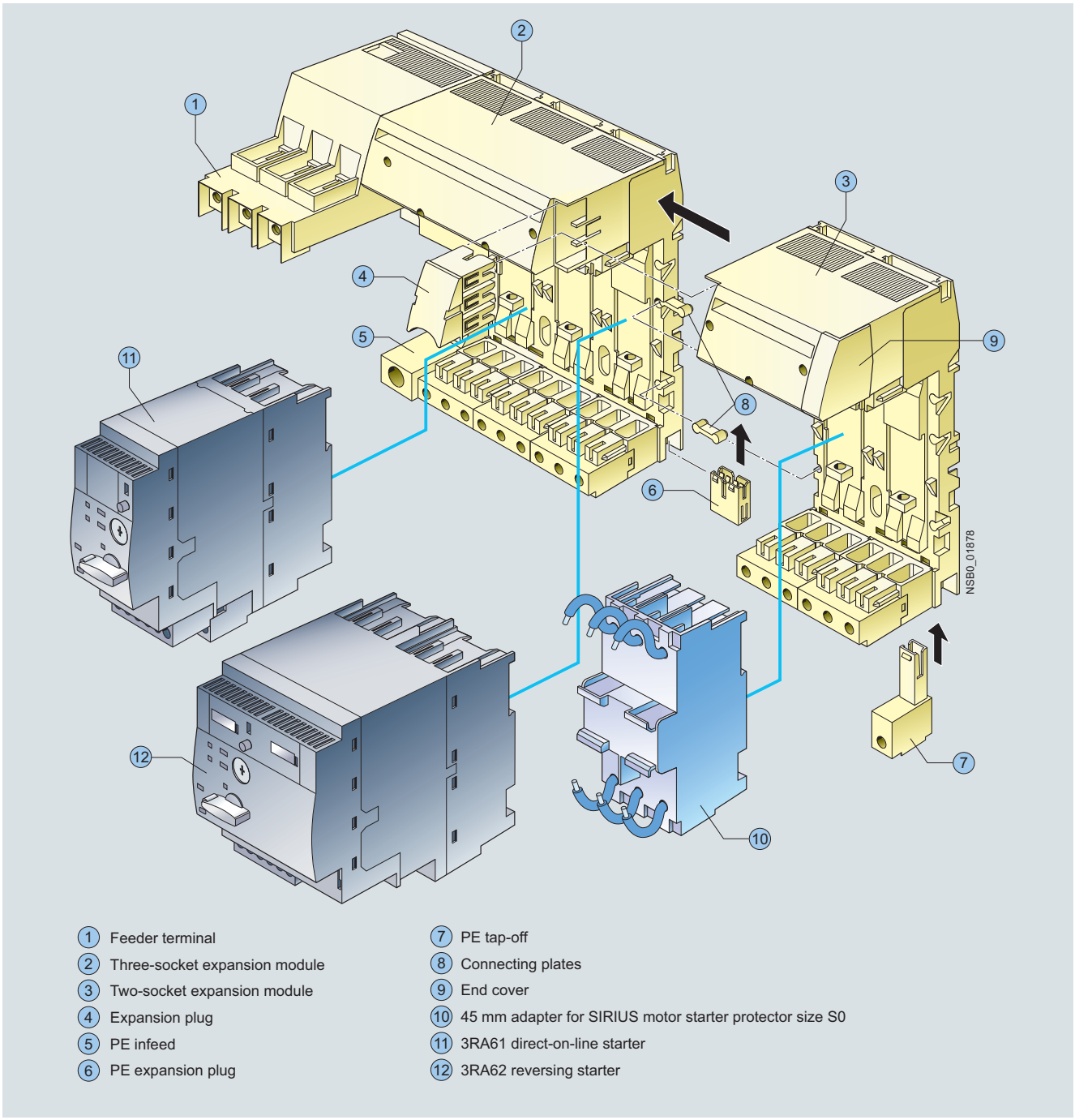
Overview

The infeed system for 3RA6 compact starters enables far less wiring in the main circuit and, thanks to the easy exchangeability of the compact starters, reduces the usual downtimes for maintenance work during the plant's operating phase.

The infeed system provides the possibility of completely prewiring the main circuit without a compact starter needing to be connected at the same time. As the result of the removable terminals in the main circuit, compact starters can be integrated in an infeed system in an easy manner (without the use of tools).

In addition, the integrated PE bar means it is optionally possible to connect the motor cable directly to the infeed system without additional intermediate terminals. The infeed system for 3RA6 compact starters is designed for summation currents up to 100 A with a conductor cross-section of max. 2/0 AWG on the feeder terminal block.

The infeed system can be mounted on a standard mounting rail or flat surfaces.



1 Feeder terminal
2 Three-socket expansion module
3 Two-socket expansion module
4 Expansion plug
5 PE infeed
6 PE expansion plug
7 PE tap-off
8 Connecting plates
9 End cover
10 45 mm adapter for SIRIUS motor starter protector size S0
11 3RA61 direct-on-line starter
12 3RA62 reversing starter

Infeed system for 3RA6 compact starters

Infeed systems for 3RA6

① Infeed

The 3-phase infeed is available as an infeed with screw connection (4-2 AWG up to 63 A or 0-2/0 AWG up to 100 A) and a an infeed with spring-type connection (4-2 AWG up to 63 A).

The infeed with spring-type terminal can be attached to the left side, as well as the right side, of an expansion module.

The screw terminal infeeds are permanently fitted to the left side of a 3-socket expansion module.

The infeeds with screw connection enable connection of the main conductors (L1, L2, L3) either from above or from below.

The infeeds with screw connection come packaged with 1 end cover, while the infeed with spring-type connection comes packaged with 2 end covers.

② Three-socket expansion modules

The expansion module with 3 sockets for compact starters is available with screw connection and with spring-type connection.

Expansion modules enable the infeed system to be expanded and can be connected to each other in any number up to a maximum length of 1.2 meters.

Two expansion modules are held together with the help of 2 connecting plates and 1 expansion plug. These assembly parts are included in the scope of supply of the respective expansion module.

When the infeed system for 3RA6 compact starters is used, the compact starters (plug-in modules) are easily mounted and removed even when live.

Optional possibilities:
- PE connection on motor starter side
- Outfeed for external auxiliary devices
- Connection to 3RV19 or 3RV29 infeed system
- Integration of SIRIUS 3RV1 motor starter protectors size S0 (using 3RA68 90-0BA adapter)

③ Two-socket expansion modules

If only 2 instead of 3 additional sockets are required, then the 2-socket expansion module is the right choice. It has the same functionality as the 3-socket expansion module.

④ Expansion plug

Two expansion modules can be connected together using the expansion plug. Flexible expansion of the infeed system is thus possible.

⑤ PE infeeds

This module enables a PE cable to be connected.

The PE infeed can be ordered with screw connection and spring-type connection (2 AWG) and can be fitted on the right or left to the expansion block.

⑥ PE expansion plug

The PE expansion plug is inserted from below and enables two PE bars to be connected.

⑦ PE tap-off

The PE tap-off is available with screw connection and spring-type connection (10-8 AWG). It is snapped into the infeed system from below.

⑧ Connecting plates

Two connecting plates are used to hold together 2 adjacent expansion modules.

⑨ End covers

On the last expansion module of a row, the slot provided for the expansion plug can be covered by inserting the end cover.

⑩ 45 mm adapters for SIRIUS 3RV1 motor starter protectors

SIRIUS 3RV1 motor starter protectors size S0 with screw connection can be fitted to the adapter, enabling them to be plugged into the infeed system.

Terminal blocks

Using the terminal block, three phase power can be fed out of the infeed system; this means that single-phase, two-phase and three-phase components can also be integrated in the system.

If the end cover is removed, the terminal block can be inserted into an expansion module.

Expansion plug for SIRIUS 3RV19 infeed systems

If the end cover is removed, the expansion plug for the SIRIUS 3RV19 infeed system can be inserted into an expansion module. It connects the infeed system for 3RA6 compact starters with the SIRIUS 3RV19 infeed system.

Maximum rated operational current

The following maximum rated operational currents apply for the components of the infeed system for 3RA6:

Component	Maximum rated operational current A
Infeed with screw connection 0-2/0 AWG	100
Infeed with screw connection 4-2 AWG	63
Infeed with spring-type connection 4-2 AWG	63
Expansion plugs	63

When several expansion modules are mounted side by side, the maximum rated operational current from the 2nd expansion module to the end of the row is 63 A.

Proposal for upstream short-circuit protection devices

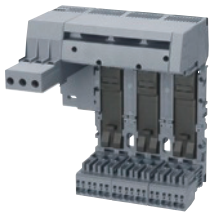
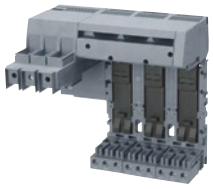
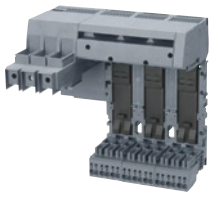
The following short-circuit data apply for the components of the infeed system for 3RA6 compact starters:

Conductor cross-section AWG	Inscriptions	Proposal for upstream short-circuit protection device
Short-circuit protection for infeed block (4-2 AWG) with screw connection		
14-2	$I_{d,\,max}$ = 19 kA, I^2t = 440 kA²s	**3RV10 41-4JA10**
Short-circuit protection for infeed block (0-2/0 AWG) with screw connection		
14-2/0	$I_{d,\,max}$ = approx. 22 kA	**3RV10 41-4MA10**
Short-circuit protection for infeed block with spring-type connection		
12	$I_{d,\,max}$ = 9.5 kA, I^2t = 85 kA²s	**3RV10 21-4DA10**
10	$I_{d,\,max}$ = 12.5 kA, I^2t = 140 kA²s	**3RV10 31-4EA10**
8	$I_{d,\,max}$ = 15 kA, I^2t = 180 kA²s	**3RV10 31-4HA10**
6-4	$I_{d,\,max}$ = 19 kA, I^2t = 440 kA²s	**3RV10 41-4JA10**
Short-circuit protection for terminal block		
16	$I_{d,\,max}$ = 7.5 kA	**5SY...** **1)**
14	$I_{d,\,max}$ = 9.5 kA	
12	$I_{d,\,max}$ = 9.5 kA	
10	$I_{d,\,max}$ = 12.5 kA	

1) To prevent the possibility of short-circuits, the cables on the terminal block must be installed so that they are short-circuit proof according to EN 60439-1 Section 7.5.5.1.2.

Infeed systems for 3RA6

Selection and ordering data

	Version	Order No.	Weight approx. kg
Three-phase infeeds and expansion modules			
 3RA68 12-8AB	***Infeeds with screw connection 4-2 AWG left***		
	Infeed with screw connection with permanently fitted **3-socket expansion module with screw or spring-type terminals on the outgoing side and integrated PE bar**	**Screw terminals**	
	Expansion module with 3 sockets for 3 direct-on-line starters or 1 direct-on-line starter and 1 reversing starter		
	• Screw terminals on outgoing side	**3RA68 12-8AB**	0.957
 3RA68 12-8AC	• Spring-type terminals on outgoing side	**3RA68 12-8AC**	0.990
 3RA68 13-8AB	***Infeeds with screw connection 0-2/0 AWG left***		
	Infeed with screw connection with permanently fitted **3-socket expansion module with screw or spring-type terminals** on the outgoing side and integrated PE bar	**Screw terminals**	
	Expansion module with 3 sockets for 3 direct-on-line starters or 1 direct-on-line starter and 1 reversing starter, suitable for UL duty according to UL 508 Type E		
	• Screw terminals on outgoing side	**3RA68 13-8AB**	1.146
 3RA68 13-8AC	• Spring-type terminals on outgoing side	**3RA68 13-8AC**	1.179
 3RA68 30-5AC	***Infeeds with spring-type connection 4-2 AWG left or right***		
		Spring-type terminals	
	Up to 63 A	**3RA68 30-5AC**	0.283

Illustrations are approximate

	Version	Order No.	Weight approx. kg
Expansion modules			
 3RA68 22-0AB	***Two-socket expansion modules*** **With screw or spring-type terminals** and integrated PE bar with 2 sockets for 2 direct-on-line starters or 1 reversing starter. Expansion plug and 2 connecting plates are included in the scope of supply.	**Screw terminals**	
	• Screw terminals	**3RA68 22-0AB**	0.505
 3RA68 22-0AC		**Spring-type terminals**	
	• Spring-type terminals	**3RA68 22-0AC**	0.527
 3RA68 23-0AB	***Three-socket expansion modules*** **With screw or spring-type terminals** and integrated PE bar with 3 sockets for 3 direct-on-line starters or 1 direct-on-line starter and 1 reversing starter. Expansion plug and 2 connecting plates are included in the scope of supply.	**Screw terminals**	
	• Screw terminals	**3RA68 23-0AB**	0.717
 3RA68 23-0AC		**Spring-type terminals**	
	• Spring-type terminals	**3RA68 23-0AC**	0.750

Illustrations are approximate

Infeed systems for 3RA6

Accessories

	Version	Order No.	Weight approx. kg
Accessories for 3RA6 infeed systems			
	PE infeeds 4-2 AWG		
 3RA68 60-6AB	• Screw terminals	**Screw terminals**  **3RA68 60-6AB**	0.060
 3RA68 60-5AC	• Spring-type terminals	**Spring-type terminals**  **3RA68 60-5AC**	0.070
	PE tap-offs 10-8 AWG		
 3RA68 70-4AB	• Screw terminals	**Screw terminals**  **3RA68 70-4AB**	0.019
 3RA68 70-3AC	• Spring-type terminals	**Spring-type terminals**  **3RA68 70-3AC**	0.017
	Expansion plugs		
 3RA68 90-0EA	**PE expansion plugs**	**3RA68 90-0EA**	0.008
 3RA68 90-1AB	**Expansion plugs** between 2 expansion modules Is included in the scope of supply of the expansion modules.	**3RA68 90-1AB**	0.029
 3RA68 90-1AA	**Expansion plugs for SIRIUS 3RV19/29 infeed system** Connects infeed system for 3RA6 to 3RV19 and 3RV29 infeed systems	**3RA68 90-1AA**	0.079

Illustrations are approximate

	Version	Order No.	Weight approx. kg
Accessories for 3RA6 infeed systems (Continued)			
	Adapters 45 mm		
 3RA68 90-0BA	For SIRIUS 3RV1 motor starter protectors size S0 • Screw terminals	**Screw terminals** **3RA68 90-0BA**	0.152
	Terminal blocks		
 3RV19 17-5D	**For integration of single-phase, two-phase and three-phase external components** • Spring-type terminals	**Spring-type terminals** **3RV19 17-5D**	0.050
Tools for opening spring-type terminals by hand			
	Screwdrivers		
 3RA29 08-1A	For all SIRIUS devices with spring-type terminals Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated	**Spring-type terminals** **3RA29 08-1A**	0.045

6

Notes